



AGRICULTURAL RESEARCH INSTITUTE.

PUSA

JOURNAL
OF THE
**British Dairy Farmers'
Association.**

Vol. XXXIV.

1922.

PRICE 3s. (*Free to Members.*)

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London:

BRITISH DAIRY FARMERS' ASSOCIATION, 28, RUSSELL SQUARE, W.C.1.

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CONTENTS.

VOLUME XXXIV.

1922.

ORIGINAL ARTICLES AND REPORTS.

	PAGE
1. VITAMINS	7
By ARTHUR HARDEN, D.Sc.	
2. CABBAGE AS A MILK PRODUCER	12
By GERVAISE TURNBULL.	
3. THE FARM AND DAIRY IN NORMANDY	15
By Prof. JAMES LONG.	
4. FRUIT BOTTLING	22
By VINCENT BANKS, F.R.H.S.	
5. PIG BREEDING, AND THE "WHITLEY" CHALLENGE CUP COMPETITION	26
By K. J. J. MACKENZIE and JOHN M. HARRIS.	
6. NATIONAL INSTITUTE FOR RESEARCH IN DAIRYING	32
By R. STENHOUSE WILLIAMS, M.B.	
7. ANNUAL REPORT OF THE CONSULTING CHEMIST	36
By F. J. LLOYD, F.I.C., F.C.S.	

VIEWS AND REVIEWS.

	PAGE
MILK RECORDING. By JAMES MACKINTOSH	38
AGRICULTURE AND SCIENCE. By ARCHIBALD MACNEILAGE ...	42
THE THREAT TO OUR MILK MARKET. By F. ARNOLD LEJEUNE	48
HOW TO JUDGE A DAIRY BREED. By JOHN HOWIE... ..	50
DAIRY BACTERIOLOGY. By F. J. LLOYD	55

THE DAIRY SHOW OF 1921.

GENERAL REPORT. By S. R. WHITLEY... ..	58
MILKING TRIALS. By JAMES MACKINTOSH	72
BUTTER TESTS. By H. R. EVANS, B.Sc.	160
POULTRY SECTION. By JOSEPH PETTIPHER	200
PIGEON SECTION. By W. S. BROCKLEHURST	205
AWARDS OF PRIZES	212

OFFICIAL.

OBJECTS OF THE ASSOCIATION AND PRIVILEGES OF MEMBERS...	229
THE BRITISH DAIRY INSTITUTE	235
THE 46TH HALF-YEARLY REPORT OF THE COUNCIL	236
THE ANNUAL REPORT OF THE COUNCIL... ..	240
THE MEDAL SCHEME	246
PRIZE ESSAY	249
THE PRODUCTION OF CLEAN MILK	250
EXAMINATIONS FOR DIPLOMA AND CERTIFICATES IN DAIRYING, &c.	251
RESULTS OF EXAMINATIONS IN 1921	259
EXAMINATION QUESTIONS	261
MEMBERS OF COUNCIL AND COMMITTEES	273
LIST OF MEMBERS AND AFFILIATED SOCIETIES... ..	276

INDEX TO ADVERTISERS	298

JOURNAL

OF THE

British Dairy Farmers' Association.

ORIGINAL ARTICLES AND REPORTS.

VITAMINS.

By ARTHUR HARDEN, D.Sc., Ph.D., F.R.S., The Lister Institute.

It may now be taken as definitely proved that three different vitamins exist, all of which are necessary for the growth of man and many other animals. These substances have not yet been isolated and prepared in the pure state, and most of the information *about them has been got by observations on the effects produced* when they are removed from an animal's usual diet. Perhaps the most important facts to be borne in mind concerning them are (1) that, although only present in minute amounts in foodstuffs, they are absolutely essential for the well-being of the animal and (2) that they cannot be produced by the animal itself, but must be supplied in the form of food. It seems certain that, like the ordinary foods of animals, they are produced by vegetables in the process of their growth. Although this is the case, their distribution among vegetable products is very irregular, great differences having been found between different plants and even different parts of the same plant. Nothing is known as yet of the cultural conditions required to induce a maximum production of vitamins by the plant. Vitamin A is only produced in the green parts of plants and is absent, for example, from the white heart of cabbages, &c. Some idea of this distribution and of some of the properties of these three important dietary constituents is to be gained from the following table, which is founded on a somewhat similar one contained in an article by the author in the Journal of the Society of Chemical Industry, of March 15th, 1921,

but in this special attention is paid to materials of interest to the dairy farmer :—

	VITAMIN A.	VITAMIN B.	VITAMIN C.
Other Names.	Fat-soluble A.	Water-soluble B. Anti-neuritic.	Water-soluble C. Anti-scorbutic.
Effect of absence from food.	Retarded growth ending in death. Eye-disease. An important factor in the causation of rickets.	Retarded growth ending in death. Beriberi. Paralysis in birds and rats.	Scurvy.
Best and most usual sources.	Fish liver oils. Green plants, including clover, lucerne, and hay. Butter, milk, and cheese. Egg yolk. Animal fats. Some roots, such as carrot, parsnip, mangold.	Seeds and grains, particularly in the germ and outside layers of cereals. Yeast. Egg yolk. Milk. Green plants, including clover, lucerne, hay. Many roots and tubers, e.g., carrot, potato, turnip, mangold, beet.	Green vegetables, especially of the cabbage tribe. Orange and lemon juice. Swedes and turnips. Germinated seeds. Tomatoes. Milk. Potatoes.
Present in smaller amounts.	Oil seeds. Oleo-margarine in proportion to animal fats. Cereals.	Meat. Some fruit juices. Cheese.	Meat. Many roots and tubers. Many fruit juices. Dried vegetables.
Absent from	White flour and bread. Most vegetable oils. Most lard. Most margarine. Yeast.	White flour. Polished rice. Fats.	Seeds and grains. White flour and bread. Fats. Yeast.

In looking at this table it must be remembered that very little is yet known about the comparative potency of the different materials included among the "Best and most usual Sources," although it is quite certain that they differ very greatly. Thus, cod liver oil is about 200 times as rich in vitamin A as is butter; lemon juice and cabbage are 100 times richer in vitamin C than milk; and dried yeast is about 8 times as good as dried clover, lucerne, hay, or milk solids as a source of vitamin B.

A good supply of all three vitamins, although necessary both for adults and mature animals, is specially necessary for children and young animals, which are much more susceptible to the evil effects

of any deficiency. Eggs contain large amounts of both vitamins A and B in their yolks, but the whites are quite devoid of both, hence it is essential that fowls should receive in their food an ample supply of both of these vitamins.

A good idea of the many considerations involved in this difficult subject may be gained by a study of the vitamins of cow's milk. Milk, the complete food on which the young animal has to exist, contains all the three vitamins—vitamin A associated with the fat, and vitamins B and C dissolved in the liquid. Compared with other sources, milk cannot be considered as a rich source of any of the vitamins. Thus, on the average, it has only about 1/2000 of the potency of cod liver oil as regards vitamin A, only 1/100 of that of dried yeast as regards B, and only 1/100 of that of cabbage as regards C. A most important fact which has recently been established is that the vitamin content of milk is by no means constant, but depends entirely upon the diet of the cow. It thus becomes a matter of the first importance for the maintenance of a supply of "vitaminic" milk that the herd shall be fed with materials containing the necessary vitamins in sufficient quantity. Foodstuffs may, of course, be excellent for the production of milk, although they do not contain any appreciable amount of vitamin. This is probably the case with such materials as brewer's grains and linseed oil, neither of which is known to contain any serious amount of vitamin. In such case the animal to which these materials are fed must look to other sources for its vitamins. The interest attaching to the vitamin content of foods directly consumed by man has so far confined investigators chiefly to this special branch of inquiry, and comparatively little has been done with regard to the relative richness in vitamins of the materials used for feeding cows. The difficulty arises mainly in the winter, when the animals are stall fed, for grass fed animals are sure of an adequate supply of all three vitamins, which are all sufficiently represented in the herbage which is consumed. How great a difference the change from grazing to stall feeding makes is shown by some observations recently made by Drummond (*Biochemical Journal*, 1921, 15, p. 549) on the butter yielded by a farm herd of Shorthorns. "The first sample was obtained at the end of April, 1921, and was typical of the butter produced by the cows then fed in stall on hay, cake and roots, being a hard friable and almost colourless product." This sample, when tested in the usual way by being fed to rats as their sole source of the vitamin A in a quantity of 0.2 gram per day had practically no value—the rats ceased to grow and lost weight. "A sample of the butter from the mixed milk of the same herd was obtained in early May after the cows had been put out to grass for one week, the grass being at that time fresh and green." The effect of the cows being fed for this short period on grass, in raising the amount of vitamin present in the milk, was very marked. The addition to the diet of the rats of a similar amount of butter made from this milk now caused rapid growth at

the rate usual for this animal on a good mixed diet. The same held good for the June butter. "As is well known," continues Dr. Drummond, "this year (1921) has been remarkable for a most prolonged and severe drought, which has gradually dried up and withered the pasture land to a degree seldom seen in this country. The farm in Buckinghamshire from which the samples of butter were obtained suffered very badly from lack of rain, so that before the beginning of July the pasturage was insufficient to support the cows and it was necessary to fall back on cake. The effect of the drought in drying up the fresh pasture and of the cake feeding is already apparent in the marked falling off of the food value of the butter."

These particular experiments only related to vitamin A, but there is little doubt that very similar relations hold with regard to the anti-scorbutic vitamin (C). It has, indeed, been shown in America (by Dutcher, as well as by Hess) that the anti-scorbutic potency of milk varies enormously with the diet of the cow. Milk derived from pasture fed animals was three times as effective as that from stall fed animals on a diet purposely chosen to be poor in the anti-scorbutic vitamin.

This being the case it is obviously of great importance from the point of view of public health, especially as regards the feeding of children, that the vitamin contents of the various forms of available fodder should be accurately known, so that an adequate and economic diet can be devised, by the use of which the milk, even in winter, will possess nearly if not quite the same vitamin content as in summer. Unfortunately, as already explained, comparatively little has been done in this respect, but it may be of interest to see how far a winter feed actually in use corresponds with the little we do know on the subject. In this particular case the feed consisted of 60 lbs. of mangolds, 10 lbs. of hay, 10 lbs. of oat straw, and, in addition, $1\frac{1}{2}$ lbs. of decorticated cotton cake and $1\frac{1}{2}$ lbs. of oats for each gallon of milk. As regards the vitamin A, the only one of these materials which can be considered as a good source is the hay; mangolds and oats have been found to be comparatively poor in this respect and the straw and cotton cake are also probably poor. Vitamin B is on the whole well represented, being present in hay, mangolds, oats, and presumably also in cotton cake. It is, however, in respect to vitamin C that the diet shows the greatest deficiency. Mangolds are stated to be very poor in this vitamin as is the beet, a near botanical relative, and the same is true of the straw, cake and oats. There only remains the hay with any pretensions to be a good source, and this is probably much less efficacious than the grass from which it was made, since a large proportion of vitamin C is presumably, as in the case of cabbage, lost during the drying process. It appears, therefore, that cows, on the foregoing feed, would be taking in decidedly less vitamin A and very much less vitamin C than during the summer months, and the milk

produced would be correspondingly poorer in these two constituents, whilst the butter made from it would show a deficiency in vitamin A. In the making of cheese the greater part of the vitamin A remains in the curd, whereas the water-soluble vitamins B and C chiefly pass into the whey. As regards vitamin C, the feed would be much improved by the addition of swedes, if this were permissible on other grounds, as to which I am not in a position to judge. It is a curious fact that among vegetables it is the members of the cabbage family, the cruciferae, that are the richest in vitamin C, both as regards the green plants and the roots, the swede, for example, being much richer than the carrot or beet.

It will be seen from the foregoing how important is the subject of vitamins for the dairy farmer, and at the same time how little of the special information which he requires is available. Greatly extended research in many directions is urgently called for, and it is for the various agricultural associations to see that it is provided for and organised.

CABBAGE AS A MILK PRODUCER.

By GERVAISE TURNBULL.

THE increasing interest which centres round the cheap production of good milk draws attention to the value of the cabbage crop as a means to attain this laudable object. It is rather remarkable how little use has been made of this excellent plant as compared with the ubiquitous, but inferior, swede, and even mangel, due perhaps to the high fertility necessary to produce a good crop without drawing too heavily on the land.

There is no doubt, however, that provided good conditions in this respect, cabbage is a better crop to grow than most roots, and probably considerably more paying. In a herd where results are closely watched it has been found that the cows at once drop in milk when they are taken off cabbage and put on mangel, and not excepting marrow-stem kale, which runs it close, it is found an admirable milk producer for most of the autumn and winter months.

It is easy to overlook the fact, which doubtless partly accounts for its superiority as a milk maker, that cabbage is a much richer food than roots of the turnip order and mangels in its most important constituent, albumenoids, and also a healthier one, especially from a sanitary point of view; but these valuable assets are worth every consideration if we stick to the object in view set out above, and we may add the further excellent point, as compared with roots, the indifference of the cabbage to weather conditions.

Kellner's analysis of field cabbage is as follows :

	%				Digestible (crude)	
Water	84.7				%	
Crude protein	2.5	...	...	...	1.8	
Crude fat... ..	0.7	...	...	...	0.4	
Carbohydrates	8.1	...	...	...	6.5	
Crude fibre	2.4	...	...	...	1.7	
Ash	1.6	...	...	...	9.4	
Total dry matter	15.3			Starch equivalent		

McConnell gives the yield at 20 to 30 tons per acre, and up to 25 tons have been grown at Harper Adams' Agricultural College.

It is doubtless known to some that, with some contrivance, cabbage of sorts can be cut the whole year round, but the excellent results of a full supply cannot be obtained--as with all such green crops--without some knowledge of the way to get a succession of

feed. But, judging by what one sees and the variations between writers on the subject, cabbage knowledge is not uniform or widespread to the detriment of the dairy industry.

Fortunately, the cabbage is immensely accommodating—no plant is more so—and so, as with pigs, which are equally amenable, we do not study it to its full advantage, and though plants pull through, planted almost any time, this is hardly business, as cabbage pays for a little study.

Leaving out Enfields and Imperials, which, though more suitable for sheep, are perhaps worth attention for cattle, as they come in early and grow quickly, Drumheads of sorts and the conical-headed kinds form a useful succession. The Winingstadt is a useful variety of this latter (ox-heart) type, and if these and Christmas Drumheads are spring sown, and Drumheads of sorts in autumn, a fresh breadth will come in each month from, say October to January, the quicker growing Winingstadts being ready probably in November. This plan has been followed with success at the Harper Adams' soiling farm.

The old plan of growing merely from an autumn seed bed need not be adhered to, even for Drumheads, for the early kind of Drumhead can be got ready as early as September from a spring sowing, much as Thousand-head, and even to mature quicker than kale. It is a mistake to suppose that a year or more is necessarily taken up with either plant. It is perhaps this old tradition that prevents more growers making use of free-growing kinds of cabbage.

Even savoys are neglected, though generally marketable and invaluable in the late winter. If a little care is taken to combine spring and autumn sowings, and to make use of the conical-headed sorts for wet and frosty months, a fine succession of most excellent food for dairy cows is within reach of practically every arable dairy farmer that would enhance his output and his profits, and, further, maintain his herd in a healthy condition.

But experience varies in different parts, we find, and some appear to be able to cut cattle cabbage before October even when June planted, though the majority are probably lucky if they can do so by the beginning of that month. The time of planting naturally affects this point, but its success depends more, perhaps, on the plant being well-developed before moving, as it is found that large, thick-stemmed plants (produced by thin seeding) do much better afterwards than poor spindly specimens. For this reason the six weeks life in the seed-bed, which some recommend, is not nearly long enough unless transplanting is adopted, and this is not economical. In the recent drought the importance of this point was doubtless brought home to many stock-feeders.

Production is, perhaps, helped by not planting out till spring, which seems now to be generally favoured, though as good an authority as Wrightson was in favour of autumn, on the ground of easier and safer rooting in the damper season; but the ravages of

hares, rabbits and birds, and occasionally frost, must be taken *per contra*, and the all-important matter of succession to dairymen is better secured by growing several varieties.

Under the best conditions, however, rain and frost may play havoc with the flat-pollled kinds, hence it is worth bearing in mind how well cabbage keeps when properly stored whole, ensilage not being a necessary alternative. If laid in layers, preferably head down, between layers of straw, and covered with a little straw, in heaps rather larger than potato clamps, they take no harm from frost or thaw, but they will heat if packed too closely.

Gathering and loading is a troublesome job, even as compared with kale, though a crop is secured fairly expeditiously with a hook.

Cabbage is an economical food, and soiling experience has shown that far less hay is required when as much as 1 cwt. is fed, and as great weights can be grown as compared with hay, the balance is probably much in favour of cabbage, financially.

The Harper Adams' work seems to prove this, and it has there been found that any risk of tainted milk can be obviated, even when feeding very large quantities of cabbage, by proper ventilation, and feeding after milking, also that by feeding salt any bad odour from the liquid manure can be prevented. Less than 80 lbs. per day of cabbage caused some shrinkage in the milk, and it seems that big cows should not get less than this in winter. They will then milk well and keep in condition also with 14 lbs. of good hay and an average of about 4 lbs. of cake.

As to the method of feeding, it is found that feeding cabbage from racks instead of troughs is an advantage; rock salt should be put in the mangers. Cows will eat far more cabbage than mangel, and it is evident, when we compare their composition, that we have in cabbages a splendid food for heavy milkers, the value of which is at present under-estimated.

THE FARM AND DAIRY IN NORMANDY.

By JAMES LONG.

NORMANDY has always exercised a great fascination for me, since, as a youth, I learned to appreciate the peculiarly dainty character of Camembert and Neufchâtel Cheeses, which are made on so large a scale in various districts of the province. When, in later years, I encountered my first difficulties in the production of milk and dairy produce and was unable to find any practical authority to give me advice, except my friend Professor Sheldon, I decided to ascertain at first hand what could be learned in France and Switzerland, and still later in Denmark, with the result that I almost of necessity was drawn to the Norman Cheesemaker, who sometimes gave me an opportunity of witnessing the process of making Neufchâtel, Coulommiers, Pont l'Évêque, and Camembert cheese.

Although there are many districts in France in which the Dairy Industry is an important feature of the agricultural system—notably in Seine et Marne, the home of the Brie and the Coulommiers, in the Vosges, famous for its Gruyère—none can compare with the counties of Calvados and Manche, the former of which is celebrated for its Camembert, Livarot, Pont l'Évêque, Neufchâtel, and Bondon, which in the aggregate are made at the rate of many millions a year. These types of cheese might long ago have formed the basis of a new industry in England but for the objections on the one hand of farmers to take up new work, and on the other of dealers who have at all times proved unwilling to render their assistance in the sale of an English type of a foreign product, however good it might be. The result is that the English market is now supplied with a Danish Camembert, while the French are making an article inferior to the refined variety of pre-war days, but which appears to sell equally well.

The most favoured districts of Normandy in which butter rules, and that of the highest type, lies chiefly in Manche—spreading from Bayeux, famous for its Tapestry and Cathedral, to St. Lo and Isigny right down to the little town of Valognes, where the famous firm of Bretel Freres founded their butter-blending factory. During the excursion made by members of the B.D.F. Association in France some twenty years ago, as Chairman of the Conference Committee I had the pleasure of conducting them to this factory, as well as to Bayeux and various towns and farms in the adjoining county of Calvados, more famous for its cheese, and in particular to Caen, where a conference was held.

In those days margarine, which was made in two factories in this district, resembled butter so closely that it could be and was

indeed sometimes sold as such. The time, however, came when the law, which it appears was systematically broken, came down with considerable force upon its transgressors, and the fine butter of Normandy was no longer subjected to a nefarious imitation which injured its respectable name. I have seldom been to Paris without visiting the Central Market (the Halles) to examine the various types of cheese and the Isigny butter, and to witness the sales by auction. For it is to Paris that the majority of manufacturers in Normandy send their goods. In no country known to me is it possible to sample butter so easily or to find such exquisite flavour, equal to the finest samples at the Dairy Show, though not quite so mild.

During the first week in September, 1921, I crossed the Channel to again study the agricultural position there. I may first call attention to the placid conditions under which the Norman farmer works with his men. France has made greater haste than ourselves in effecting her recovery in agriculture. While the English labourer has been making wages and shorter hours his first consideration, the Frenchman has been working longer. His teams were ploughing longer distances from home until six o'clock for his harvest had been gathered in, although, like our own, it had been unfortunate.

In the immediate neighbourhood of Rouen there is little to be seen in connection with agriculture, although there are numerous producers of milk; but the cattle are inferior to those in the Dairying Counties. On the road to Caen one sees vast orchards loaded with fruit. Most of the apples were intended for cider, for which Normandy is so famous, as it is for the spirit produced from the fruit, which the natives regard as Brandy and describe as "Calvados."

Caen is the centre of a large plain which chiefly consists of arable land, and extends from Mezidon to Bayeux and from Falaise to the sea. At Caen, which is the ancient capital of Normandy and the chief town of Calvados, I interviewed the Director of Agriculture for the district and subsequently visited some farms selected from the addresses he gave me. Before describing my visits it will be well to furnish a brief description of the agriculture of Calvados—if for no other reason than that it is probably the most prosperous Department or county in France. It covers 551,000 hectares, or roughly 1,380,000 acres. On that portion of the great plain which lies between Caen and Falaise, a rich soil lies upon calcareous rock and this is chiefly under the plough, producing grain, colza, mangels, beet, clover, sainfoin, and similar forage plants which are suitable for the feeding of horses and cattle. On all good farms the two last named are cultivated chiefly for the production of milk—although in the pastoral districts milk is a more important item. The cattle approximate to the Shorthorn in type, being large, deep, gentle in disposition, and well adapted for milk

and meat production. The farmers take great pride in their herds, which are usually Herd Book stock, and appear to make a great point of securing good bulls. Although the cows are known as the Normande to the public in general, they are of the rare Cotentin to the farmer. In colour they are red or orange and white, patched somewhat like the Ayrshire, but with brindling on the back. Apart from the general contour of the head there is an expression on the features which marks the foreigner. Sainfoin is one of the most popular crops in this district, while the cattle are largely fed upon beet pulp from the sugar factories, where they are sufficiently near. One of the most prosperous districts in Calvados, the Pays d'Auge—a curious description of a rich grazing zone which is really a valley such as we might compare to the Vale of Aylesbury—is chiefly clay; the plough has here given way to pastoral farming, many of the fields being planted with apple trees for the production of the renowned cider of the country, resembling in this respect the cider district near the lake of Zurich. The cattle fatten well and produce large quantities of milk, most of which is employed in the production of cheese chiefly Camembert and Pont l'Évêque.

The Pays d'Auge covers the Arrondissements or groups of parishes of Lisieux and Pont l'Évêque. It is curious to note that while the homesteads on the arable farms form quadrangles with the farmyards in the centre, the buildings on the pastoral farms are isolated.

A few remarks may here be made with regard to the combination of pasture land and the cultivation of the apple, which might become much more extensive in this Country, with advantage to the herbage, and I refer more particularly to the system followed in the Canton Zurich, which I believe to be superior to that of the Pays d'Auge. Grass is laid down for a short series of years, the plants composing it including Sainfoin, Lucerne, Clover, with Cocksfoot Timothy and some other of the stronger species of grass. As the cows feed from the manger and rack all the year round, there are neither fences nor hedges. As the grass is conveyed to the cattle in summer, and it is mown three or four times, it is daily manured, so that large crops are the result. It is practically all arable land, and as the corn, root, and potato crops are grown in the most suitable parts, the result is that although the climate is similar to ours there is no loss owing to drought, as with us, for the grass obtains double assistance first from the abundant liquid and solid manuring, and next from the shade which is supplied by the large fruit trees with their spreading branches, although they are grown long distances apart.

The third of the chief dairying districts covers the country beyond Bayeux, en route to the north of the Department of Manche. This district is known as the "Bessin," and resembles the Pays d'Auge in that it is pastoral—chiefly heavy soil and devoted to Dairying. In earlier years, when I knew the Bessin better, the

butter was almost wholly made on the farm from cream raised in conical vessels of large size standing in running water. It was sold in the block at the local markets to agents of Bretel and other blending houses for despatch to England. Now, however, much of the milk goes to Co-operative Creameries, of which a number exist in Bayeux and other smaller towns, and particularly in Isigny itself, which gives its name to the finest brand in France. France has thus followed the Danish lead. Cider, too, forms a feature of the industry of the Bessin.

The Baccage, another well-known district largely covering the district of Vire, is again chiefly clay, although less fertile than the two preceding localities. Here draining and liming have raised the fertility of the soil, but in some cases it is too thin for farm purposes and is therefore devoted to the production of timber.

The cereal crops of Calvados cover 350,000 acres, and produce an average of 1,000,000 quintals of wheat, 500,000 quintals of oats, 200,000 quintals of buckwheat, 250,000 quintals of Barley, and 50,000 quintals of Rye, valued in pre-war figures at 40 million francs or £1,600,000. A hectolitre of 100 litres is about 22 gallons, and on the best soils of the plain the yield varies from 30 to 40 hectolitres per hectare, or 33 to 44 bushels per acre. Oats are a much more important crop than barley—the “grey” variety, similar to our English seed, being sown in winter, and “black” in spring. Buckwheat forms an important feature on the poorer soils of the Baccage. *Trifolium incarnatum* also takes its place as an indispensable crop on many farms. Turnips have no place in the rotation. Calvados, although so largely devoted to the plough, holds the highest place as a pastoral county, containing as it does 650,000 acres of grass-land, in addition to which there are 125,000 acres of Sainfoin, Lucerne, and clover; these plants, together with mangels, hay, and beet pulp form the chief items of home-grown food for the cattle.

The live stock of the county includes the Anglo-Norman, a good carriage horse and the heavier Percheron. There are in all 275,000 head of cattle, of which 250,000 are of the Cotentins, and of these 125,000 are milch cows. As a milk producing county Calvados stands fifth in order, the quantity yielded by the cows reaching 3 millions of hectolitres, or 66,000,000 gallons, showing in English nearly 530 gallons per cow, which is not quite equal to the average yield of the cows of this country. The quantity of butter produced was a few years ago 12 million kilogrammes, or nearly 26½ million pounds, while cheese was then produced at the rate of 7 million kilos, or 15½ million pounds. Thus we see that an enormous proportion of the milk produced is utilized in the manufacture of butter and cheese. It may be well to remark that in September the cost of a kilo of good butter, chiefly factory made, was 7½ francs, or about 3s. per English pound, while a Camembert Cheese cost 2½ francs. To the French these prices were high, as a franc with them was as a shilling with us.

The practice in making butter of the "Isigny" brand is to set the milk in deep pans, which are placed in a brick channel through which water flows next to the walls. Here the cream of the warm milk rises rapidly owing to the falling temperature and the consequently wider distance in the specific gravity between the fat and the serum in which the globules are suspended. When the best cream or "fleurette" has arrived at the surface, the dairy is suddenly warmed by a stream of heated air from the kitchen on the other side of the wall, the result is that in a short time the milk is coagulated. The cream is then removed and is ready for churning. This process leaves a small proportion of fat in the coagulated milk, which is at once supplied to the calves, and these fatten upon it and make excellent veal.

I now turn to the manufacture of cheese, which is made in some three or four varieties in the vicinity of Lisieux, St. Pierre sur Dives, Pont l'Eveque, and to the east in the neighbourhood of Montroullier-Buchy, between Rouen and Amiens. The most important types are Camembert, Pont l'Eveque, and Neufchatel. The first named has long been made at Dairy Schools in this country, into which, with the other varieties named, it was introduced by the writer, together with Brie, Coulommiers, and Gervais, some thirty-five years ago. I exhibited Camembert at the Royal Show at Newcastle and subsequently at the London Dairy Show, and was on each occasion awarded the Silver Meadal. British farmers, however, have never exhibited any desire to produce either of these types, in spite of the more substantial profits which they return to the farmer of France. In mid-September I visited a Camembert factory about 14 miles from Caen. The farmer was absent, but his wife took me over the various apartments. Here a thousand cheeses were made daily. The milk was received on the modern plan, for it was chiefly delivered by farmers, heated and coagulated in metal vessels holding about five gallons each. When ready for passing into the moulds it was wheeled into a large apartment in which were a sufficient number of draining tables to hold over a thousand moulds, packed close together, and made of tinned iron, of the usual Camembert type. These were filled by the men and left to drain until they were fit for turning. The work is more expeditious and apparently more successful than that of past days. This apartment was not so clean as I have observed usually in the dairy of a farmer who makes cheese solely from his own milk. The two ripening rooms were overhead, the cheeses being laid upon rushes and turned with regularity until the white fungus commences to grow, when they are transferred to the more advanced or maturing room, where, on my visit, the blue fungi was growing. These rooms are fitted with slotted shelves which reached within two feet of the ceiling. Looking round I observed few, if any, actually spoiled cheeses. But subsequently noticed that these Camemberts, which are packed in round boxes—a picture of the house on the lid—were on sale in some of the larger

towns of Normandy. The whey is supplied to the pigs, of which a large number are fed for the market, where they were realizing excellent prices—joints costing 4.25 francs, or in other words 3s. 5d. at pre-war figures, for the French pound of half a kilo, which is 1.1 lbs. A Camembert cost 2.50 francs, equal to 2s. at old figures, whereas in past years this cheese realized about 5s. to 6s. the dozen. Eggs were 6.80 per dozen, veal 5 francs and beef 4.70 francs per lb., while milk cost 70 centimes per litre, or approximately 3.20 francs per gallon.

I next take the Pont l'Éveque as another type of the cheeses I have seen made in Normandy. This variety is of square shape, measuring about 5 in. by 5 in. by $1\frac{1}{4}$ in. to $1\frac{1}{2}$ in. in thickness. It is produced from sweet milk set at 87° to 90° F., and coagulated much quicker than the Camembert, *i.e.*, in 15 minutes instead of $1\frac{1}{2}$ hours. The result is a much firmer cheese, similar in texture to the Port du Salut. The first portion of the process, as it was pursued on a farm near Pont l'Éveque village, closely resembles that adopted in making Stilton in the extraction of the whey, although in this case it was allowed to drain away at once. As a firm variety, one gallon of milk is approximately equal to the production of one cheese. The claim to fame made by Pont l'Éveque is found in its flavour and texture, but it is less creamy than a first-rate Port du Salut, a variety made in the adjoining county of Manche. On one occasion I asked permission to visit the factory of the monks of Briquebec, who formerly were the sole manufacturers, but was refused.

The manufacture of Neufchâtel is not common to large farmers but rather to owners of two or three cows. It is of small size, shaped like a Stilton, but weighing only five or six ounces; it somewhat resembles a ripened Bondon. My observations of the work of production, made on a previous visit, was in a few cottages to which I was taken by a large farmer in the village of Monteroulier. The curd, after production, is placed in a cloth which lines the inside of a framework of wood—the frame has neither bottom nor top, but the ends and sides are built like post and rail fencework. The frame measures about 20 in. by 10 in.. When the curd has parted with most of its whey it is turned into a clean cloth placed in the frame and covered with a heavy weight in the shape of a block of wood of some 3 in. in thickness. When the curd has arrived at the right consistence and maturity, for it must be especially creamy, metal moulds are filled with it, and the cheeses ejected one by one this requiring some dexterity. The character of the curd is formed during the process of coagulation, which is a very lengthy one, for the milk is set at a low temperature, while the rennet used is small in quantity. The young cheeses are ripened upon straw and are ultimately veined with blue mould, which gives them a delicious flavour. The Bondon may be made on a similar system, but it is sold in a fresher condition.

I give one example of a Norman farmer who produces milk for sale, and who was one of the leading men on the great plain, living close to the Chateau of his landlord. Entering by the great gates

which close the homestead to all comers I found the house facing the farmyard and the various buildings. The family lived in the kitchen, into which I was invited by the farmer, who was apparently clothed like his workmen with a cap and short smock. Like almost all Continental farmers, he assumed that my one desire was to inspect his cattle. I was at once taken to the herd of some 25 Cotentin cows which were grazing in an extremely bare pasture, for this part of France had suffered from the dry summer like ourselves. The cattle were of the usual pedigree type, all being entered in the Herd Book, and were an extremely useful lot, although I should not regard them as quite equal to a pedigree herd of Shorthorns, Red Polls, or Devons. The average yield of milk from the best cows was stated to be 4,500 litres per cow, or nearly 1,000 gallons, although I very much doubt whether this was not a slight exaggeration. They are taken into the stalls in October and allowed to graze daily during fine weather. Their winter ration is approximately 11 lbs. of Sainfoin hay, 4½ lbs. of ground nut cake, with some mangels, clover, and straw chaff. Sugar-beet pulp is also used to some extent, and obtained from a factory some little distance away. The best cows were valued at 4,000 to 5,000 francs each, but it must be remembered that the franc has enormously depreciated, which accounts for the higher price of every commodity. The chief crops grown, as on all similar farms in the district, are oats, wheat, mangels, beet, sainfoin, clover, and meadow hay. Sainfoin is kept sown for three years, and yields 4,000 kilos of hay per hectare, *i.e.*, roundly 4 tons per 2½ acres, which does not appeal to me as a satisfactory crop. A telephone is used on the farm, the buildings of which cover a considerable area. The French farmers, though as intelligent as farmers in England, live and dress more frugally and participate more extensively in the work of the farm. I observed no modern or improved homesteads, while those on every farm which I visited, must have been hundreds of years old in one case the house possessing an historical association. When we remember that Calvados is larger than Norfolk or Northumberland which are among the largest counties in England and more than twice as large as Cheshire, our premier dairying county, it will be seen that, its population being only 410,000, it plays a great part in feeding the people of France.

FRUIT BOTTLING.

By VINCENT BANKS, F.R.H.S.

THE art of bottling fruit in the home has made great strides during the past few years, but it is not yet sufficiently known amongst the people whom it should concern most (*i.e.*, Cottagers and Smallholders). When they realise, as I trust they will, from this article how very simple it is, I feel sure that greater strides will be made. As a nation we should become practically self-supporting, so far as preserved fruit is concerned.

STERILISING PANS AND THERMOMETERS.

When commencing look round the kitchen utensils for a suitable boiling pan, or large saucepan; or failing such, there are various kinds of proper sterilisers on the market, and if one of these can be afforded it is an advantage, as they are constructed especially for the purpose, but they are not really essential. Having found a pan deep enough to take the bottles, get something for a false bottom, such as a fish drainer, wire netting doubled over to shape, some strips of wood nailed together, or even a porous dish-cloth. Always see that there is something in the bottom of the pan to protect the bottoms of the bottles from too direct contact with the heat, if this is not done the bottles will crack. If possible, get a thermometer which registers up to 212 deg. F. By using one you know exactly when to remove the bottles from the pan, and then the best results are obtained, especially as regards appearance. To insert the thermometer in an ordinary pan, a hole should be pierced in the lid, and to hold it in position use a rubber washer, or paper folded up thick and a hole pricked in the middle answers quite well. When using the pan for other purposes, put a cork in the hole in lid.

SUITABLE BOTTLES.

Vacuum jars are the best for preserving *anything*, as they are especially constructed to exclude air. The initial cost deters many from using them, but by gradually getting them, say six at a time, the expense is scarcely noticed, while they prove much the cheapest in the long run, for they last indefinitely and only require renewal of rubber rings. There are various kinds, but the principal two are the clip bottle and the screw top bottle. Both are very good. When buying new bottles it is a wise plan to keep to the same pattern, and with the same size tops; then there is never any difficulty with wrong fittings, these being interchangeable. Examine *new* bottles for flaws in moulding at the fitting parts. Around the edge

of the neck where the rubber band fits there is sometimes a small lump or ridge, this must be filed off, and the glass caps examined and treated in the same way. Glass caps are better than metal ones, as they last much longer. The object of a clip or screw is to keep the cap firmly in position while cooling after sterilisation, after which there is no more need for them until the bottles are again required. Using ordinary bottles will be dealt with later.

VACUUM BOTTLING WITH THERMOMETER.

Sound and rather under-ripe fruit is best. Wash when necessary, and pack tightly so as to get as much as possible into each jar. Two sticks cut flat at the end are very useful for placing the fruit in nicely. When packed to the top, fill with clean cold water, put on the rubber ring, cap, and clip or screw; if clip it should remain on until the bottle is cold after sterilisation, but the screw band *must not* be fastened tightly until removal from the pan. Place in sterilising pan and put cold water in to just cover the bottles, place on the fire, and adjust the thermometer so that it dips into the water about two or three inches. The slower the water is brought to the required heat, the better the result obtained. With a gas fire it is simple, but with an ordinary range move the vessel about according to the heat required, and with the open fire have about three parts of the vessel resting on the hob. Try and regulate the heat so as to bring the water to a temperature of 155 deg. F. in one hour and a half, rising to about 140 deg. F. in the first hour, and to 155 deg. F. in the next half-hour; then let them remain at 155 deg. F. for about five minutes. Next lift out - if screw bottles fasten each one tightly on removal, but clips need not be touched on removal; when cold remove clips and screws to see if the caps are firmly on. They should be, if there are no flaws. Wipe the necks and the screws dry; these need not be put on again unless wished, but do not screw tight or they may rust on. Should any of the caps be loose search for the fault, and when found put right and re-sterilise.

The temperatures given above are suitable for *all* soft and stone fruit, but apples, pears, and quinces should be brought up to 180 deg. F. in the same time, *i.e.*, to 150 deg. F. in the first hour, and 180 deg. F. in the next half, and maintained for about 10-15 minutes. Tomatoes, firm and not too ripe, treat the same as apples and pears, but keep at top heat for 15 minutes.

BOTTLING IN THE OVEN.

This is a quicker way of bottling, and ordinary or vacuum bottles may be used. The colour is not quite so good as in the pan method, but the flavour is equal. If using vacuum jars, pack fruit quite to the top and put the cap on, adding no water (the rings and screws or clips should be put into warm water later); now put the

bottles in a moderate oven, and gradually increase the heat. Have a kettle of *boiling water* ready, and when the fruit has sunk down slightly, which is an indication that it is hot right through, bring one bottle out and put a warm rubber ring on, now *fill up with boiling water*, put on the cap and screw or clip down tightly; repeat the operation with each bottle. Ordinary bottles should be tightly packed but not too full, as they have to be sealed by some simple method. Heat them the same as the vacuum jars, always remembering to put the first bottle in the front and the others behind, then they come out in the order they were put in. When shrunk slightly, nearly fill with boiling water—the water should well cover the fruit but not reach the top of the bottle—and seal each bottle before removing another by whatever method you may have decided upon. Several methods will be mentioned later.

STERILISING WITHOUT THERMOMETER—VACUUM OR ORDINARY JARS.

Pack and fill vacuum bottles in the same way as if using thermometer, and ordinary bottles in the same way as for the oven method, but put the water in first. Select bottles of about the same height, as the water in the pan should only reach to within an inch of the tops of the bottles, place in a pan with a false bottom, with cold water round them, and put on the fire as described in “Bottling with Thermometer,” and bring to near simmering point. This may be ascertained by occasionally placing the hand on the pan lid, and when this gets so hot that you have to remove it instantly, then is the time to see what is going on inside. Lift the lid and take up a jar with the fingers, give it a twist, and if the fruit is still as tight as when packed put it back again. Watch it carefully now, and in a few minutes look at it again, and so soon as you find the fruit moving in the bottles, it is time to take them out. Remove the pan from the heat, then take out and fasten the bottles. The reason of fruit rising from the bottom of the bottles is that it has been allowed to get too hot, though fruit done in syrup usually rises.

SYRUPED FRUITS.

Where sweetened fruits are required, the syrup should be prepared first. A light syrup may be made by adding one pound of sugar to one gallon of water and then heating in a pan until the sugar is dissolved. Let the syrup get cold before pouring over the fruit in the bottles, but if bottling by the oven method pour on boiling hot. A stronger syrup may be made with two pounds to the gallon, and so on according to taste. The stronger the syrup the more the fruit shrinks and rises in the bottles, and where this is objected to the bottles may be filled up one from another and re-sterilised. Another method is to place the fruit in the syrup and gently simmer in a preserving pan until shrunk, then fill carefully into the bottles and sterilise in the ordinary way.

SOME SEALS FOR ORDINARY JARS.

The Banksian Seal. -- This is an excellent seal and has the advantage over many others, that any number can be prepared at one time and are then ready for use. Find some linen, calico, or other strong material and cut to the required size, put one pound of resin, two ounces of beeswax, and two ounces of tallow (or fat of some kind) into a jar and melt it, stirring occasionally; a good way to melt the mixture is to put the jar in a pan with water, heat, and let the water boil round the jar. When thoroughly melted paint the mixture freely over the cut pieces, and these, when dry, pack up in a bundle; they are then ready at any time. Cut a piece of paper to rest on the top of the bottle, and on removing a bottle from pan or oven, lay one over, then lay the seal over it, the heat softens this at once, and the paper prevents any of the mixture from melting and falling on to the contents; fasten by tying the seal round tightly.

Bladder is a good old-fashioned seal. After cleaning the bladder cut to size, leaving an easy margin for the string to grip round when tied, soak, and let them be damp and soft, but not dripping wet, when placed on the jars.

Mutton fat, paraffin, wax, or salad oil may all be used for sealing. Melt the fat or wax but do not make it too hot (a mixture of both is good). Pour it on top of the water to about an inch thick, take care not to move the fat jars while cooling or the fat may not stick to the neck of the bottle; if juice is showing through when cold, heat up again and then cool. With oil, just warm it up and pour to the same thickness. Oil never sets, and should be tied over to keep it in.

Vegetable parchment, and even ordinary paper, may be used. Soften the parchment in water, partly dry and tie tightly round, then paint it over with either starch, paste, gum, varnish or something that will "clog" up the pores of the paper.

With ordinary paper, three or four layers should be used and each one painted and put on separately, pressed round and tied. Starch, flour and-water paste, gum, milk, and white of egg are all suitable for the painting. With paper seals the liquid in the bottles usually evaporates slightly on keeping, but does not ferment or mould. The reason for the painting of the seals is that the atmospheric pressure on the seal, when a proper vacuum is formed, is about fifteen pounds to the square inch, and a damp day would so relax the paper that the air would force its way in and destroy the contents of the bottle.

PIG BREEDING, AND THE "WHITLEY" CHALLENGE CUP COMPETITION.

By K. J. J. MACKENZIE and JOHN M. HARRIS.

THE competition for the "Whitley" Challenge Cup has been established by the B.D.F.A. with a view to furthering a consideration of the importance of breeding pigs which will produce bacon that satisfies certain definite commercial requirements. It is a matter of common knowledge that the Danes, in the years preceding 1914, were very strong competitors in our prime bacon market. It is equally well known that why they captured so large a proportion of our very best trade was because they had a supply of pigs which were *uniformly good*, whereas our home bacon curers had and still have to complain of want of uniformity. A certain proportion of the pigs sent into the factories are of the very highest quality possible; on the other hand, they receive, and have to "cure" for their factories could not go on if they rejected them a large number which are poor and rough. In other words, the Danish curer seldom sees anything that is not good enough to produce prime bacon, but the English curer has to put up with any class of pig sent into the factory. It is obvious that if this state of affairs continues, the Dane, now the war is over, will once again take custom away from the British farmer. There is no valid excuse for losing this custom; indeed, there was never a time when the English farmer more needed all the customers he could get. In the production of "prime" or "London" bacon only farmers can compete. The bacon manufactured from pigs grown abroad cannot compete. Such bacon has to come to us "over-cured," for if it were cured in the same way as our best it would not stand the long sea voyage. Thus the British farmer has, in this case, only other farmers to compete with, and, therefore, no one but himself to blame if, through not producing exactly the right type of pig, he loses his best customers.

The merest tyro in pig-keeping knows that commercial points are not the breeders' and feeders' only consideration. The curer only requires certain characteristics in the finished animal; the farmer, however, has to think of three factors—breeding, feeding, and profit.

Up to a certain point our Breeding and Fat-stock Exhibitions demonstrate which are the pigs that best suit all parties. Sometimes, however, such shows get somewhat unbalanced, when judges are carried away by an enthusiastic admiration for "Show" rather than commercial points, or fashion pure and simple is given too much consideration. These imperfections have a very serious result on commercial pig breeding. Farmers who use nothing but pedigree

parents, whether for pure breeding or for crossing, become dissatisfied with the produce of pigs related to those prize winners who won because they were "beautiful" rather than useful. In their disappointment with such stock they start breeding from anything, and the result is simply chaos. The mongrels so produced are the animals the Bacon Curer most complains of.

The above-mentioned blemishes of our exhibition world should be, and often are, corrected by the action of our Breed Societies. Just lately, owing to war troubles and other circumstances, fashion rather than utility has been governing too many of the awards made in the classes at our post-war Shows, while high prices at sales have followed suit.

The B.D.F.A. felt that it would help the Breed Societies by giving prizes to be won by pigs which produced sides from which the best or "London" bacon could be manufactured. Through the generosity of Mr. Samuel Whitley they were in a position to offer a valuable Challenge Cup as Prize. Four Societies, representing the Cumberland, Essex, Gloucester Old Spot, and Large Black breeds, took advantage of this competition.

It was arranged that there should be three stages, at each of which, it was hoped, useful information might be obtained from the competition. The first was the inspection and report upon the living animals; the second and most important was the contest for the Challenge Cup (particulars of which appear on p. 28); and lastly, instruction in the form of lectures and answers to questions to be given on three days of the London Show. The writers of this article were entrusted with the inspection of the living animals on arrival at the Bacon Factory on September 13th and 14th, and with the instruction to be given at the Dairy Show on October 18th, 19th, and 20th.

The 24 pigs, six specimens of each of the four breeds entered, were as arranged, examined on arrival. Our work was quite independent of that of the two Bacon judges, who acted for the B.D.F.A. at the Agricultural Hall some five weeks later. This, the first, year of the competition we, the judges of the live pigs, picked out what we believed to be the five points, or characters, most essential to the requirements of the Curer.

These points were: "Over the Shoulder," "Behind the Shoulder," the "Underline," the "Loin," and the "Ham." Going over each individual pig separately we there and then scored each one of the above points, "Good" or "Normal" or "Poor" or "Bad" by handling as well as by eye.

For every point noted "Good" we allowed, in the scoring table, 5 marks; for every "Normal," 2 marks. On the other hand, every point found to be "Poor" led to a deduction of 2 marks, and for every one noted "Bad" a deduction of 5 marks. In other words, "Good" was equal to +5 marks, "Bad" to -5 marks, and so on.

We did not attempt to "score" up the marks till the whole process of judging the competing pigs as bacon was long over, and it is very interesting to us to find that our examination of the living pigs coincides with the opinion of the Bacon judges. The first prize winner easily scores most marks, the second prize winner coming next, and so on.*

The Table of Scores below shows the results obtained from the whole lot of 24 pigs for all five points. It cannot be claimed that the results are altogether satisfactory. On the other hand, the figures prove the great value of such a competition. It may be hoped, with every confidence, that in a few years' time the scoring will be much higher with all competitors.

Looking at the Table of Scores to find which particular point the 24 pigs scored best in, it will be seen that "Loin" came out best; there are 8 pigs found to be "Good," 14 "Normal," only 2 "Poor," and no "Bad." "Underline" is very close up, having 9 "Good," 10 "Normal," 5 "Poor," and again no "Bad" marks. It is not satisfactory to find "Hams" so badly reported upon, *i.e.*, only 5 "Good," 12 "Normal," and 3 "Bad." It was to be expected, from the many complaints known to be made by the trade, that "Over the Shoulder" would be unsatisfactory. Breeders as well as Judges at Shows are apt to forget how the Public, and consequently the Curer and Shopman, do not want heavy fore-ends.

One breed had 6 "Bads," *i.e.*, 4 "Over the Shoulder," and 2 "Behind the Shoulder." Another Breed had 3 "Bads" marked against it for "Hams." It is interesting to see that in not one of the three cases when "Bad" was scored by a breed did any one specimen score the "Good" mark for that point. This suggests that the competition may be very valuable as a guide to those Breed Societies anxious in the future to improve any weakness in a variety.

TABLE OF SCORES.

24 Pigs.	Good.	Normal.	Poor.	Bad.	Total.
Over the					
Shoulder ...	+8 (×5)	+15 (×2)	-7 (×2)	4 (×5)	150 34
Behind the					
Shoulder ...	+7 "	+12 "	-3 "	-2 "	159 16
Underline ...	+9 "	+10 "	-5 "	-0 "	165 10
Loin ...	+8 "	+14 "	-2 "	-0 "	168 4
Ham ...	+5 "	+12 "	-4 "	-3 "	149 23
Marks Scored...	+37×5=185	+53×2=106	-21×2=42	9×5=45	
Per cent. ...	+30.8	+44.2	-17.5	-7.5	

Possible score +5×5×24=600.

A word must be said about uniformity. A reference to the notebook, used during our examination, tells us that, as regards the

* This being the first year of the Competition, it is not thought wise to give separate scores for each breed; but the Secretary of any competing breed may have the score of his own Society's exhibit on application to one of us.

five important bacon points examined for, there was much variation in each of the four groups of pigs; only in the case of the winning breed were we able to mark three individual pigs exactly the same one as another. We do not believe, though we did not put it to the test, that this would have been the case had purely "show" points been taken. We think it obvious that uniformity in *utility* points should have the first consideration.

INSTRUCTIONAL.

We here reproduce, as requested, a short resumé of the lectures given at the Dairy Show; a synopsis of which was circulated at the time. We add one or two items about which we were much questioned.

The pig most suitable for producing the best class of "London" bacon is probably, all things being considered, the most profitable pig to grow. These should be well finished and yield from $7\frac{1}{2}$ to *not more than* 9 score of carcass. To do this they should not weigh alive and unfasted more than 200 to 250 lbs. A bacon hog will not be found to be prime if he does not yield from 72 to 75 per cent. of carcass when unfasted live weight is calculated from. If after being well suckled and well weaned they are sheltered and thoroughly well fed, pigs should be prime bacon by 7 months old on the average. If they are let run at grass as stores, pigs should be put up to feed at about 7 or 8 months, for they do not yield the best bacon if much more than 10 months old. To accomplish these weights and satisfy the curer only suitable pigs should be bred. Good food is wasted on badly-bred stock. The loss from badly-bred pigs is a national one and has been very considerable in the past, and both farmers and curers suffer loss of individual profit from every unsuitable animal that has to be fed and cured.

All breeding stock should be deep and long, showing a long line of well developed teats, of which there should be at least 6 on each side; there should be plenty of silky hair all over the body; the limbs should not be long and should show *flat*, but not excessive or coarse, bone; and though on short legs the pigs should be active enough to move without discomfort.

No wrinkles should show on the sides, for they indicate either a coarse or thick skin or that the pig is not finished. Coarse folds at the hocks are very objectionable. The whole animal should show level fleshing. Rolls or patches on the neck or body are bad, for they show excessive fat, and this fat is frequently soft or oily, which condition prevents the whole "side" coming out as prime bacon. The pig should handle firm all over.

The bacon curer does not want weight in the fore-end of the hog, though both he and the breeder require *depth through the heart*. Coarse shoulder blades, making the pig wide, heavy and uneven "Over the Shoulder," are very bad; heavy jowls and weighty

necks are not wanted, for every part of the fore-end has to be sold at a comparatively low price. Excessive fat at this part is particularly bad.

The parts "Behind the Shoulder" and the "Loin" cannot be too long, but these parts should be wide and thick all along. They should handle meat which should be firm and springy; no bone should be felt, but if these points touch soft, however thick, the pig is too fat. The "cuts" from these parts generally sell for most money and so their importance is paramount.

The pig is peculiar in that the meat (prime streaky) from behind the shoulder is *particularly valuable*. This part and the belly form the "Underline." The part behind the shoulder, where lies the prime streaky, should be full of firm meat and the flank should handle firm and thick. On the other hand, there should be no paunchiness; pigs with large flabby bellies "die" badly. The good underline not only gives the curer valuable meat, but gives the feeder good profit, for pigs with this quality yield a high percentage of carcass when slaughtered, and this is all that is paid for however great the live weight may be.

The joints just alluded to may be spoilt and the whole side much reduced in value by a condition known as "Seedy-cut" or "black-belly." After our lectures we were asked many questions about this condition. The popular idea used to be that it had something to do with sex changes. This has been shown to be erroneous.* It is concerned with hair pigment. Certain coloured pigs breed stock that sometimes show it, other *strains* of coloured pigs of the same variety do not always show it, white pigs never show it. Breeders of coloured pigs will have to select those animals which are free from the taint or their variety will be handicapped in the markets for the future.

The ham or gammon is one of the most valuable parts of the pig. This is especially so when the leg is cured as ham and sold whole. If cured on the side as a gammon it is often cut in two and part sold as "top of gammon" at a high price, while the other part sold as "gammon hock" makes a low price, for it consists of a large proportion of bone, tendon, &c. A sure sign of a good gammon is a tail set well up on the back, not too fine, with plenty of long silky hair. The top of the ham should be long, wide, and level, while the inner and lower ham should be wide and thick, with flesh down to the hock, showing no wrinkles or loose flesh. It is important that this part should show a good full round and meaty joint.

Lastly, we would refer to the much repeated question as to which is the best variety for prime bacon production. This is impossible to answer. Any of our pure varieties could be bred to a suitable standard. The small short pigs with very fine bone must be discarded altogether. But there are now very few, if any, of these

* See "Physiology and Bacon Curing" by K. J. J. Mackenzie and Dr. F. H. A. Marshall, *Journal of the R.A.S.E.*, vol. 76, 1915, p. 7, &c.

about, and when found they should be fed off and slaughtered for small pork.

We incline to the belief that nearly all our English breeds of pigs might, by selection, be made producers of the very finest bacon hogs. The whole object of the "Whitley" Challenge Cup competition is to bring this about. Let breeders get rid of all those characteristics which score "Bad" or "Poor," let no herd contain among its members an animal that produces short or shallow pigs, and, when awarding prizes, let every judge keep utility prominently in mind, then no breed will fail to satisfy customers who demand the best bacon.

All the varieties competing are very promising material for any body of breeders to work on. The Britisher is above all men the master of the breeder's art; he can be trusted to produce any farm animal that human skill can reasonably be asked to obtain; if he will concentrate his endeavour on the production of the prime bacon hog and leave show or fancy points as a mere secondary consideration, the "Whitley" Challenge Cup will become a trophy that only perfection can hope to win.

THE NATIONAL INSTITUTE FOR RESEARCH IN DAIRYING (UNIVERSITY COLLEGE, READING).

By R. STENHOUSE WILLIAMS, M.B., B.Sc., &c.

THE National Institute for Research in Dairying was started in the autumn of 1912 by means of a grant from the Ministry of Agriculture and Fisheries, acting in collaboration with the Development Commissioners.

At that time the Institute was but a baby with an income of about £1,500 a year to meet all expenditure, without a Dairy Farm or Dairy, and housed in primitive laboratories.

Despite the difficulties created by the war the Institute has steadily grown in number of staff, usefulness and income, and has now acquired a Dairy Farm of 350 acres on which it will be possible to carry out much more extended experimental work than has been possible in the past, concerning problems involved in the breeding and feeding of dairy cattle, the handling of milk and its conversion into milk products, &c.

Before this work can be undertaken in its entirety it will be necessary to modify the house which stands upon the farm for laboratory purposes, to erect suitable farm buildings and dairy; and provide light, heat, water, and steam.

For these purposes a sum of £30,000 is necessary, and the Board of the Institute is making an appeal to raise this amount, part of which, it is hoped, may be derived from Government sources.

In the meantime the work goes on, and the staff of the various sections of the Institute, comprising Dairy Husbandry, Chemistry, and Bacteriology, are glad to give help and advice to all members of the Milk and Dairy Industries who make application to them. Many such applications are now being received, but the staff of the Institute would like it to be more widely known that it is their business to give all the help they can to those who are in trouble, and that they are very willing to do so.

In order that the nature of the work which is being carried out at the Institute may be better understood, a list of the publications which have been issued by the staff during the past year is appended, and the following short summary gives some indication of their contents.

WHEY.

Papers 1, 2 and 3 demonstrate the value of whey as a food for pigs, its inadequacy if green food does not also form a part of the diet, and the risk of imperfect growth which is found when inadequate or imperfectly balanced diets are given.

Paper 4 is a discussion of the very difficult problem of the economic use of surplus whey.

BROM-CRESOL TEST FOR MILK.

Paper 5 sets out a simple colour test which indicates abnormal alkalinity in freshly drawn milk. The use of this method of testing milk has been found to be of service to cheese makers in Yorkshire and elsewhere in detecting "Felon" milk, and thus loss has been saved in the cheese making industry.

DISCOLORATION IN CHEESE.

Paper 6 is the continuation of the study of discoloration in cheese. The practical benefit of the use of starter in helping to control this fault has already been demonstrated. The present paper deals with the colour changes which may take place in one of the products of protein disintegration that may occur in cheese.

THE FEEDING OF DAIRY COWS.

The pamphlet (Number 7) is designed to show how the dairy farmer may put in practice the conclusions and recommendations of scientific workers in such a way as to ensure satisfactory feeding at a reasonable cost.

THE VALUE OF MILK RECORDING.

Facts, which demonstrate the very great value of milk recording in eliminating the uneconomic cows from dairy herds, are set forth in papers 8 and 9.

STUDIES CONCERNING WHOLE MILK.

These studies are of two types. First, those found in papers 11 and 12 in which the bacteriological condition and keeping qualities of Grade A (Certified) milk are investigated, and advice is given to enable those who are engaged in this work to maintain the necessary standard of purity. Second, papers which demonstrate the methods necessary for the production of a milk supply, cleaner, and of better keeping quality than has been found in the past. Papers Nos. 13, 14, 15 and 16 are of the latter character.

PUBLICATIONS FROM THE NATIONAL INSTITUTE FOR RESEARCH IN
DAIRYING.-----
1921 to 1922 (March).

(1) "The Value of Whey in Feeding Pigs," J. Golding. The Agricultural Education Association, June 1921.

(2) "The Relation of the fat-soluble factor to Rickets and Growth in Pigs," S. S. Zilva, J. Golding, J. C. Drummond and K. H. Coward. The Biochemical Journal, XV, 3, 1921.

(3) "Pig Feeding that stops Growth," J. Golding, Modern Farming, February, 1922.

(4) "The Whey Problem," J. Golding, The Milk Industry, February, 1922.

(5) "The Further Development of the Brom-Cresol Purple Test," J. Golding and E. C. V. Mattick, The Agricultural Education Association, June 1921.

(6) "The Influence of Reaction on Colour Changes in Tryptophan Solutions," E. C. V. Mattick and R. Stenhouse Williams, Biochemical Journal XV, 2, 1921.

(7) "The Feeding of Dairy Cows," J. Mackintosh, The National Institute for Research in Dairying.

(8) "A Study of Milk Records," S. Bartlett, Agricultural Education Association Abstracts, December, 1921.

(9) "Milk Recording Societies and their Effect upon the Dairy Farming Industry," J. Mackintosh, Journal Farmers' Club, February, 1922.

(10) "Milk in its Economic Aspect," R. Stenhouse Williams and J. Mackintosh, The Milk Industry, II, 2, August, 1921, and the Dairyman, XLIV, 2, October, 1921.

(11) "A Study of the Bacteriological Examination of 'Grade A' (cert.) Milk," K. Freear, A. T. R. Mattick and R. Stenhouse Williams, Journal of Hygiene, XX, 2, October, 1921.

(12) "The Keeping Qualities of Grade 'A' (cert.) Milk," K. Freear, A. T. R. Mattick and R. Stenhouse Williams, Journal of Hygiene, XX, 4, January, 1922.

(13) "Report on a Simple Steam Sterilizer," W. A. Hoy and R. Stenhouse Williams, The Dairy Supply Co., Museum Street, London, June, 1921.

(14) "The Sterilization of Empty Milk Churns by Steam under Pressure," A. T. R. Mattick, *Journal of Hygiene*, XX, 2, October, 1921.

(15) "Can the Ordinary Farmer produce pure Milk?" R. Stenhouse Williams, W. A. Hoy and M. Sargeant, *Modern Farming*, October, 1921.

(16) "Concerning Steam Sterilization," R. Stenhouse Williams, *Essex Farmers' Union Yearbook*, January, 1922.

(17) "Methods of Production and Distribution of Milk," R. Stenhouse Williams, address at the Bristol Show of the Bath and West and Southern Counties Society, June, 1921.

(18) "Studies in Milk," R. Stenhouse Williams, "*Lancet*," December 31st, 1921.

(19) "The Classification of some Lactose-Fermenting Organisms isolated from Cheese, Water, and Milk," T. Redman, *Journal Pathology and Bacteriology*, XXV, January, 1922.

(20) "Bovine Tuberculosis, the Etiological Support of Family History," E. H. R. Harries and R. Stenhouse Williams, *Journal of Hygiene*, XX, 2, October, 1921.

ANNUAL REPORT OF THE CONSULTING CHEMIST FOR 1921.

By F. J. LLOYD, F.I.C., F.C.S.

The number of samples submitted to me for analysis during the year was 169. Although this is a larger number than has been submitted in preceding recent years, it is inadequate as coming from such an important body as this Association. Indeed, it is painful to think that 1,000 of the best Dairy Farmers in this Country should have so little appreciation of the value of the accurate scientific data which chemistry affords.

This is strikingly revealed upon examining the nature of the samples sent. Two-thirds were milk. The remainder were mainly separated milks, dried milks, creams, cheeses, &c. Why were these sent? As a rule, simply because the senders were afraid the samples might not come up to standard, or might contain too much preservative, or might in some other way get them into trouble. Fear prompts the demand for scientific facts, while all the time men are getting into a sorry plight for not basing their business upon sound scientific knowledge and principles. As evidence of this it is sufficient to record that during the year only one sample of soil, one of manure, and one of a feeding material were sent for analysis. The soil was poor, deficient in essential constituents, which had resulted in a failure of crop. Rather than pay the cost of an analysis the owner had lost a crop and paid all the expense of sowing and cultivation. If that is not penny wise and pound foolish, what is? Alas, it is not by any means rare. Some samples of soil were sent to me during the year, but not by a member, which were even less fertile. For two or three years futile attempts had been made to obtain profitable crops from these soils, and probably many hundred times the cost of an analysis had been lost.

As regards the Feeding Meal and Manure, neither was worth purchasing. Yet, if only one could know, how much money has been wasted and is wasted annually upon such materials.

The hey-day of Dairy Farming in this country seems passed. The future is not going to be made profitable by politics. Hard work on scientific principles, and precise knowledge in place of rule of thumb, are going to be the masters, and the people who fail to utilise these are likely to succumb. Nature ensures the survival of the fittest.

UNCHURNABLE CREAM.—During the month of August I received, at about a week's interval, two samples of cream, each obtained from the milk of a Jersey cow, which were sent me as it was found impossible to churn these creams into butter. Moreover, each owner had discovered that when the cream was mixed with that of the rest of the herd, in one case it delayed, and in the other utterly prohibited the churning. The samples came from farms in different parts of the Country, and neither sender had any knowledge of the other. The

milk of one cow was sent me, and analysis proved it to be unsatisfactory and to show an abnormally small amount of solids other than fat. This was remarkable, as the milk when passed through a separator left an exceptionally large amount of sediment. This appeared to consist mainly of cellular tissue. The creams were analysed as it was thought that they contained an excessive quantity of casein, which was in some way causing the cream fat to refuse to come together. This assumption proved erroneous.

The fat in a portion of the cream was next separated in a pure state for examination. This could not be carried out at once, and as the fat cooled it was noticed that there was a marked separation into solid and liquid fats. Subsequently these were more closely examined, and it was then found that a large proportion of the fat remained liquid at a low temperature. This, in my opinion, was the cause of the trouble. The liquid fat being abnormal must in some way or other have so affected the ordinary more solid fats as to prevent them churning into proper butter.

It has long been known to chemists that butter-fat contains a number of distinct fats, each having its own physical and chemical characteristics. In my experience it is only rarely that these vary to such an extent as to affect Dairy produce. Undoubtedly at times there is such an amount of liquid fat present; I have known it to run away from a cheese in press. It is also well known that butter will vary in hardness considerably. But the presence of so much of this fat as to render the butter too soft to make up has in the past been rare. This last year (1921) appears to have been an exception. Mr. Evans called my attention to the Butter made in the "Butter Test" at the Dairy Show, and to my great surprise there were quite a number of these semi-liquid butters which no skill could make up into solid blocks of ordinary butter. At the Dairy Show one might assume that the cause was due to feeding, but this was certainly not the case with the two Jersey cows whose butter had the same characteristic. Was it due to season? Even so, why were some individual cows affected and not others?

The subject is worth investigating. Unfortunately, I had neither the time nor the means to take it in hand after the Dairy Show.

According to my experience this condition may pass off quite suddenly, or very rapidly, without any apparent cause. It did so, I was informed, in one of the cases submitted to me in August.

SLAG PHOSPHATE.—There has recently been put upon the market under this name a manure which consists of a rock or mineral phosphate from Nauru, ground fine and mixed with low quality Basic Slag. The phosphate in the mixture is derived mainly from the Nauru phosphate and not from Basic Slag, so that the phosphate present is not really a Slag phosphate. From all past experiments mineral phosphates have failed to give results at all equal to those given by Basic Slag, so that if members purchase this Slag phosphate, expecting to obtain as good results from it as they would from Basic Slag containing the same amount of phosphate, they are likely to be sadly disappointed.

VIEWS AND REVIEWS.

MILK RECORDING.—The practice of keeping records of the milk yield of individual cows was adopted by a small number of progressive dairy farmers towards the middle of last century. The British Dairy Farmers' Association and several Agricultural Colleges and County Councils did excellent pioneer work in this direction, but the movement was confined to a few centres until the initiation of a National Milk Recording Scheme by the Ministry of Agriculture in 1914.

The extent of this development is shown by the fact that while in 1916-17 only 12,950 cows were tested, in 1921-22 there were about 95,000 under test.

The object of Milk-Recording Societies is "to improve the standard of dairy cattle and the methods of feeding them, by encouraging the members of the Society to keep reliable records of (a) the yield of milk, (b) the quality of milk, (c) the food consumed by the cows.

The main object of milk recording is to enable the dairy farmer to know exactly the yield of milk produced by the individual cows in his herd. At the end of each year the annual return for the herd is made out by the farmer and countersigned by the recorder. The use made of the record depends entirely on the farmer himself. Many undoubtedly use their records as a guide to the weeding out of the inferior milkers and to the selection of cows whose progeny are to be kept to replenish the herd. Probably every Society can show a few herds in which the average yield per cow has increased year by year.

There is no doubt, however, as milk recording becomes more general, that the average annual milk yield from the dairy cows of this country will be increased.

When studying the records of a Society over successive years, I have been struck by the comparatively small number of herds which show a steady yearly increase, and I have been forced to the conclusion that many farmers do not obtain the increase in yields from milk recording which might be expected. There may be several causes of this result. First, the farmer may not make full use of the information obtained by recording as a guide to selection and feeding of his cows. Secondly, the owner may follow the custom of selling his cows when at their maximum market value. Where either of these causes operate little or no increase in the average herd yield is to be expected. Thirdly, the owner may find

it exceedingly difficult to buy or breed better cows in the place of the inferior milkers which he has discarded. Where the difficulty is that of breeding good milkers it may be that not enough care is given to the purchase of the bull, or that the bull used, though apparently of a milk strain, fails to transmit the milking qualities of his dam or grand-dam.

The advance of milk recording has also stimulated the desire to obtain high yields from individual cows, and has led to a certain amount of rivalry as between breed and breed and farmer and farmer in this respect. There are those who consider that no good end is served by aiming at or attaining very high yields, such as 10 gallons daily or 2,000 gallons per annum. When high yields are obtained at the expense of the health and breeding powers of the cows this criticism is thoroughly justified. On the other hand, the room for improvement in milk yields is great, the need is urgent, and the limit of desirable achievement cannot be defined with certainty. Undoubtedly, much higher yields than the present maximum in many herds can be obtained without sacrificing either constitution or fecundity, and it is merely good management to give good cows the chance of doing their best for their owners and their breeds.

One point which requires attention from Milk-Recording Societies is that of the best method of stating the milk record of an individual cow. The method of the Ministry of Agriculture of recording the yield from 1st October to 1st October is the best and fairest for comparing the yields of herds. For single cows much can be said in favour of stating the yield according to lactation periods, provided sufficient additional information is supplied as to the length of the dry period preceding calving, date when the cow is again due to calve, &c.

Whatever method be adopted for stating the milk record for one year or one lactation period, it will always be possible that such a record is not a fair indication of a cow's dairy qualities; what is needed is a statement of the milk and breeding records for a period of at least three successive years, in order that a reliable opinion may be formed as to a cow's all-round capacity.

QUALITY OF MILK. The question of the improvement of milk yields should not be dissociated from that of the quality of the milk. Many Societies have made arrangements for the testing of samples of the mixed milk of a herd and of individual cows at the request of members, but progress in this respect has been slow. By concentrating on yields and neglecting quality of milk in the selection of cows and purchase of bulls, a farmer may be steadily reducing the average quality of the milk of his herd, and to a certain extent also of the breed to which it belongs. Thus a milk record scheme which concentrates attention on yields only may do a considerable amount of harm, by unconsciously lowering the average quality of the milk.

FEEDING METHODS.—The keeping of food records with a view to improvements in the methods of feeding should be one of the main objects of Milk-Recording Societies. Progress in this direction has been limited to a few Societies, located chiefly in the South-east of England, due to the initiative of the Agricultural Colleges at Wye and Reading.

BREEDING.—While milk recording provides almost immediate means of improving the milk yield and the feeding of a dairy herd, probably its biggest contribution to the dairy-farming industry lies in its present and potential value as an aid to the breeding of dairy cattle for milk production. Real improvement of a herd or of the dairy stock of the country means that heifers reared to maintain the stock must be better milkers than their dams.

The milk records of a heifer or cow provide information which, taken in conjunction with type, constitution, and breeding powers, will enable a farmer to decide which cows should be retained as the foundation cows of a herd.

Farmers with recorded herds are much more anxious than formerly to obtain a bull from a cow with a good record.

One other important point to breeders must be mentioned here. It has been shown by a study of herd records that a good milking cow is not *necessarily* a breeder of good dairy stock. The ability of a cow to *transmit* her productive qualities is distinct from the *possession* of those qualities. She may pass them on or she may not. It is by milk records that we find out the cows which are good in themselves, and also to what extent their progeny inherit their good qualities. If the dairy farmer is to get the full benefit of records in breeding he must be prepared to keep the good cows which breed good stock to a greater age than has been customary. In respect of bulls, the farmer must be prepared to follow the example of some pedigree breeders and keep a pedigree bull which throws promising heifers until these heifers come into milk; if they milk well the value of the bull is increased, in spite of his age; if they milk poorly the breeder's judgment was at fault. To make progress a breeder must be prepared to take some risk.

The question as to whether the influence of high milk records in the breeding of dairy stock may not be in the direction of a loss of constitution, and of the so-called dual-purpose qualities, is a difficult problem. What the dairy farmer requires in his cows is good milk yield, regular breeding powers, and good constitution, defining the latter term as the power to keep in good health throughout a lifetime slightly longer and more strenuous than the average. A cow which milks very well and breeds regularly for, say, five years, must possess a good constitution, whatever her external conformation or substance. Cows of the true dairy type have in the past often been insufficiently fed for the milk they produced, and have thus become weakened and more susceptible to disease. With proper management they would have been as healthy and long-lived as others

which did not milk so well. I expect milk recording will lead to the development of a recognised dairy type in which the ultimate value of the carcass to the butcher will receive less consideration than at present.

One of the causes contributing to the rapid growth of recording was the high prices realised by cows with high certified records. The period of phenomenally high prices for non-pedigree cows with high records is past, but good recorded cows have undoubtedly shown less depreciation than most other live stock. I expect in the future that the difference in price between unrecorded common cows or recorded cows with inferior records, and good type cows with certified records, will be great, and that there will always be a direct financial advantage in recording a good cow. The average dairy farmer, however, is dependent on the milk or cheese he sells, and the advantages in the form of higher yields, cheaper production, and better breeding methods are of greater value to the farmer, the breeder, and the industry as a whole than the sales of stock.

The position is different as regards bulls, and the effect of high certified records here is well nigh incalculable. The real difficulty is the uncertainty as to the true breeding value of a bull until his progeny have come into milk.

In addition to its value for selection, feeding, breeding and sale of dairy stock, the work of milk recording exerts a great influence towards better herd and farm management. The attention to detail involved in the keeping of records and the good results which follow, lead to a greater interest in other points in herd management. Records of calving and service dates are kept good, cows get a better regulated dry period, and there is an additional stimulus to good management and greater cleanliness of the cows and sheds.

Milk Record Societies have also an incalculable influence on the dairy farmer himself. The work is of the kind which helps him to help himself, provides material for self-education, and brings men with common interests together for helpful discussion. The cowman, also, is affected by a subtle influence; he is provided with an added interest in his work; he has on weighing days an easy means of measuring progress which he did not have before recording was introduced, and he is, almost unknown to himself, encouraged to milk more quickly, strip more thoroughly, feed more carefully, and treat his cows more quietly at all times in order to get better results.

JAMES MACKINTOSH.

Extracts from "The Farmers' Club Journal."

AGRICULTURE AND SCIENCE. - Our first duty is to define the terms: What is Agriculture? What is Science? To the first we make answer: Agriculture is the art of manipulating and making use of the field so as to produce the maximum of food and raiment for the use of man. It is the source and foundation of all wealth, and unless there be successful cultivation of the soil, there cannot be comfort and happiness for man, not to speak of wealth, or national pre-eminence. In the broadest sense it is possible for world agriculture to be prosperous, while the agriculture of particular parts of the world may be depressed. The development of transport has narrowed the circle of the earth, and it is no longer possible for plenty to reign in Egypt, and famine to bear sway in Canaan. The movements of trade and commerce and intercourse in these between the nations may bring the plenty of Egypt into the possession of Canaan.

To the second question—What is Science? - the Master of Balliol recently supplied an answer. Science is exact knowledge applied to things. In the particular case, it is exact knowledge regarding soil, climate, plants, and animals, rendered subordinate to the efforts of man to extract the maximum of food and raiment from the fields and their products. Much harm has been done by neglect of this definition of science. It has too often been confounded with philosophy, and with realms in philosophy somewhat remote from everyday human experience. The farmer assumes that the man of science is engaged in solving problems, the solution of which has no marketable value. His work may be useful as a training ground for the mental powers, but men engaged in cultivating the soil need not worry themselves about such things. This mistaken idea as to the real meaning of science is responsible to a large extent for the condition of things now to be looked at somewhat in detail. There are two main divisions in our theme: - (1) What the attitude of Agriculture to Science actually is; and (2) What the attitude of Agriculture to Science ought to be.

THE ATTITUDE OF AGRICULTURE TO SCIENCE.

In general the working farmer views the efforts of scientific men to aid him in his toil with scepticism; treats these efforts with neglect; frequently regards the results announced with good-humoured tolerance; and seldom betrays any enthusiasm when they are rehearsed in his hearing. Hence the slow growth of technical schools, the comparative poverty of attendance at lectures and colleges by those actively engaged in agriculture, and the reckless and indiscriminating way in which efforts to promote research and experiment are often criticised. The ground for this attitude is largely ignorance, and in many cases invincible ignorance; but there are also extenuating circumstances. One of the most patent of these has been the evident failure of many who profess to apply science to agriculture to make good. Not a few such have proved

disastrous failures as farmers, while the rule of thumb hard-working man succeeds marvellously. He becomes rich, and he can teach the teachers not only how to make money, but, in order to that, how to apply exact knowledge to the everyday things with which he is engaged.

Perhaps this attitude of scepticism is less pronounced than it once was, and the reason is the unconscious but very real assimilation of exact knowledge by the working farmer. Some may smile when reference is made to milk-recording as an illustration of the application of science to agriculture; nevertheless it is one of the most patent efforts put forth within the past 30 years to obtain exact knowledge and apply it to the department of dairy farming. It is needless to expatiate on the scepticism with which milk records are often treated, and the neglect of recording by those who most need to possess exact knowledge of the yield of milk by their cows. Nothing has been more conclusively established than the impossibility of judging with any degree of accuracy, by appearance only, the real milking properties of a dairy cow. Even, although in a general way, an expert may conclude from the appearance of udder, teats, and milk veins, that a cow is likely to be a good milker, he cannot, by any effort along that line, say what her actual milk yield is likely to be. Unless he can do that, he can form no useful opinion as to the profit or loss each animal in his herd is likely to show.

Another cause of this scepticism and neglect is a certain fatalistic tendency in the mental outlook of the man engaged in agriculture. To some extent this is due to ignorance—that is, to the ignorance begotten of neglect of culture. Reading and the art of composition and public speaking should be cultivated. Much is said about the farmers' communion with Nature; but too often the said communion consists in experience of the primeval curse. In the sweat of his brow he earns his bread; and the exercise of muscle and sinew which accompanies it, if it does not produce the sweating, leaves the average man a very tired piece of humanity. A person who is physically worn out cannot make much progress in reading. Possibly he might keep awake during a spell of light reading, but as a rule the literature which is produced to help the farmer in his calling is anything but "light." The reading which gives breadth of vision and does much to eradicate the fatalistic tendencies in the farmer is not of this technical order. It is the reading which brings him into touch with the realities beyond his immediate range of vision. When he makes himself acquainted with the effects which have followed the application of exact knowledge to public health—*e.g.*, in the almost total extinction of diseases like cholera, typhus fever, and smallpox—he will recognise the folly of supposing that braxy, louping-ill, scrapie, and other diseases in sheep, tuberculosis in cattle, joint-ill in horses, and swine fever, are inevitable. He will realise a secular application of a great religious truth—"All things are possible to him that believeth." Disease is

no more inevitable in the human frame and in live stock than are weeds in the cultivated field. If fields be not cultivated, then weeds are inevitable, but one object of cultivation is to prevent the growth and the mastery of weeds, and one object of research and experiment—of what is called scientific inquiry is to discover what the “weeds” are which destroy the healthy tissues of live stock.

Agriculture as a calling appears to develop a strong vein of conservatism. It is true that politically the farmer is usually classed as belonging to that side of things, but it is not to this that reference is now made. Some of the most ardent adherents of the Conservative Party in politics we have ever known have been the most advanced and up-to-date farmers—the most ready to adopt new methods and new machinery; while, on the other hand, we have known not a few pronounced Radicals who were the most hopeless adherents in their neighbourhood of antiquated methods and machinery. The conservatism to which reference is made arises to a large extent from pride. Ignorance plays a large part in ministering to this pride, and let it be admitted also that not infrequently something is due to filial piety. A man may have such a regard, on moral grounds, for the character and opinions of those who have gone before him, that he overlooks the radical distinction between the unalterable character of moral truth and the ever widening range of human knowledge in the physical sphere. It has recently been wisely remarked that much of the labour of Sir John Lawes and his colleague at Rothamsted proved of little value, not through any lack of effort on their part, but because of their ignorance, which they shared with all scientific men of their time, of the science of bacteriology. Problems in the storage of nitrogen, which were simply insoluble to Lawes and Gilbert, have become simple, and their solution has led to revolution in agricultural practice. Were facts of this description better realised by those engaged in agriculture, their good-humoured tolerance and lack of enthusiasm for scientific research would be greatly modified.

WHAT THE ATTITUDE OF AGRICULTURE TO SCIENCE OUGHT TO BE.

The attitude of Agriculture to Science ought to be an attitude of eager interest, generous support, cordial co-operation, and buoyant anticipation. These would be by far the most effective antidotes to scepticism, neglect, good-humoured tolerance, and lack of enthusiasm. While progress towards this goal may have been slow, no one who has lived through the past forty years, and been observant, will deny that it has been real.

It may seem a small matter, but as an index to the existence of this progress reference may be permitted to the existence for over 30 years. of the Glasgow and West of Scotland Agricultural Discussion Society. This society came into being on the initiative

of Sir Robert P. Wright when he instituted in Glasgow as a private venture a course of lectures on agriculture. The nucleus of the society was the membership of his class. The idea was to band together farmers and others engaged in agriculture and kindred pursuits for the simple purpose of discussing important current topics affecting the foundation industry. Those who have attended the meetings of this society during more than three decades will be the first to admit that it has been the means of disseminating in popular form a vast amount of useful information, and of creating an interest in the work of practical farmers and scientific investigators. Comparatively little has been made of the latter, while inquiries were still in the laboratory stage. This is a wise policy. It is at a later stage that the working farmer becomes interested. But the popular presentation of laboratory results, and even the crude criticism of these results, have awakened anticipations which have not infrequently been realised. The time was in Scotland when it would not have been possible to found and maintain in vigorous vitality a society with the aims of that under review.

The growth of the Agricultural Colleges, although slow, is another illustration of the existence of eager interest in efforts to obtain exact knowledge which will be helpful in the cultivation of the soil, and the manipulation of its products for the benefit of man. That these colleges are to-day more popular than they have ever been is beyond dispute. They are being attended in increasing numbers by those directly engaged in agriculture, and we take it that no farmer, whose son or daughter is choosing an agricultural career, would now dream of setting them out without giving them a period of training in an Agricultural College. The equipment of our Scottish Colleges is far from perfect; the gradation of studies and the arrangement of the curriculum leave much to be desired; but the interest of the working farmer in the Agricultural College is an assured fact. It is in the college that the budding agriculturist learns what progress had been made in acquiring exact knowledge regarding his industry, and the many problems which call for solution in order that it may become increasingly prosperous. The relation between agricultural research and agricultural economics is every day becoming clearer, and therefore the attitude of agriculture to science should be an attitude of generous support. Unhappily this is what it is not. The support given hitherto by the ordinary working farmer to encourage efforts after exact knowledge applicable to agriculture has been niggardly in the extreme. Outstanding evidence of this is the poor response made, during a period of unexampled agricultural prosperity, to appeals for the founding of the Plant Breeding and Research Station, and to the Animal Diseases Research Association. Out of the thousands of farmers in Scotland, many of whom were amassing fortunes, only three contributed as much as £100 apiece to the fund for establishing the station first named. It was only after something approaching superhuman effort that the

amount was raised which enabled the Provisional Committee to claim the equivalent grant promised by the Board of Agriculture for Scotland. How it has fared with the appeal on behalf of the Animal Diseases Research Association has not transpired, but this much is known, that the support promised by those who are likely to benefit most by the success of the work which that association is to undertake has not been generous. It is easier to account for and partly to justify the ignorance, the fatalism, and the conservatism of the Scottish farmer, than to offer any apology for his ungenerous response to these appeals. He it is who will reap the major portion of the benefit, and in proportion to his liberality in support will be his power of direction and control.

One of the most serious hindrances to the application of exact knowledge to agricultural practice is the absence of cordial co-operation between the practical farmer and the scientific investigator. The success of the latter will only be in proportion to the zeal of the former. Take the case of animal diseases. Epizootic abortion has almost been prevented through the success of efforts put forth by the scientific staff of the Ministry of Agriculture and Fisheries. For long the efforts of such investigators were frustrated through the absence of co-operation on the part of owners of herds in which the plague was recurrent. These owners, in not a few cases known to us, had recourse to the assistance of quacks who liberally advertised their services. But it was only when owners were in the direst need that men with scientific training, and exact knowledge so far as that was attainable, were called in. Once these men got to work on data which were isolated from possibilities of error, progress was made. But that progress was long delayed through the mistaken policy of concealment which was so frequently adopted. In connection with the inquiry into navel-ill or joint-ill in foals, it has been almost impossible to obtain accurate data regarding the history of the disease in studs where it has been experienced from one season to another. Only in one case has the Committee been furnished with accurate data as to a mare whose progeny have died from this disease. The value of even the very limited exact data which have been collected is the best proof of the loss sustained through absence of a greater mass of material of a like nature. But breeders will not take trouble; they will not keep accurate records; and, until they can be made to realise that science is exact knowledge, the most willing and expert investigators living can hardly do much to help them. A similar line of criticism must be adopted where sheep diseases are concerned. The observant flockmaster and shepherd must co-operate with the scientific investigator. It is not their theories, although these may be useful enough, that are desired; it is their observations—the facts which have come under their own immediate notice. These may be of incalculable assistance to the scientific investigator; they may constitute for him an infallible guide to an explanation of hitherto baffling phenomena.

Buoyant anticipation will be the assured result should agriculture abandon its attitude of scepticism, neglect, amused tolerance, and lack of enthusiasm, and adopt an attitude of eager interest, and generous support towards, and cordial co-operation with, science. The financial support afforded will ere long be proved a sound investment, and a new era will dawn for agriculture. It is somewhat humiliating to think that so large a proportion of the research and experiment work, which has conferred untold benefit on agriculture in all its branches, is of foreign origin. France, Germany, and the United States have all been prominent in these departments. Only within the past quarter of a century or thereby has there been concerted effort along these lines in Great Britain. Individualism has done marvels in creating and moulding British breeds of live stock, and there have been several notable pioneers in the production of cereals, potatoes, and roots. But on the purely scientific side, on the side of the search after exact knowledge, Great Britain has not been true to herself. Let us hope that a new era has dawned, and in that buoyant anticipation let the practical agriculturist and the scientific investigator go forward to greater triumphs.

ARCHIBALD MACNEILAGE.

From "The Scottish Farmer."

THE THREAT TO OUR MILK MARKET. Such a heavy drop has recently occurred in the value of all that the farmer has to sell, that doubts are expressed on every hand as to what is the best course to pursue in the future. As in the past, the growers of cereals feel the most gloomy, and the general opinion is that live stock must be the sheet-anchor of British farming.

Methods of stock-raising naturally vary in different parts of the country, and are governed by local circumstances, but milk production is becoming more and more general, and its problems are being taken more seriously every year. As grain-growing wanes in popularity, so milk production is likely to increase. It has many advantages, and the interest which is taken in it is reflected by the success of the milk-recording movement, the greater attention given to it at shows, and the insistence on good "milk-pedigrees" when buying either bulls or cows. Much of the confidence in milk is also undoubtedly due to the feeling that it is not subject to foreign competition, which is so serious a worry to the grower of grain or meat.

But does this "splendid isolation" really exist, and will it continue to do so? If there is one lesson which the war should have taught the civilised world, it is that no country can live unto itself alone. The Americans learnt that lesson in war, and they are not likely to forget it in peace. At the moment, the rate of exchange is very much against American traders when they try to sell their goods in our markets. But it will not be so for long, and even now, in spite of it, they are seriously encroaching on the British milk market. It is only necessary to look on the advertisement hoardings or in shop windows, to see how big a trade there is in condensed milk. Some of it is made in England, certainly, but a great deal is imported.

It is mere folly to say there is no need to be afraid of tinned milk for nobody buys it who can get the real stuff. The facts prove otherwise. In any big manufacturing centre, and especially in the Lancashire towns, one finds whole streets where the milkman is quite unknown. Condensed milk reigns supreme, and the reason is easily understood. It is apparently cheap--anyway, a tin can be made to go a long way, and there are not many people who take the trouble to calculate the exact cost per pint after the water has been added. It is convenient; it is on hand when needed, and will not spoil if not wanted at once. Last, but not least, its merits are constantly being thrust on the notice of the public by untiring advertisement. Perhaps, too, those newspapers who are so ready to decry ordinary milk are "doing their bit."

In my opinion, the high price of fresh milk during these last two winters has done much to drive away custom, and, in the summer time, every pint of sour milk tends to do the same. People do not like going without coal, but the coal strike taught them it was

easier than they imagined. They do not like going without milk, but every customer who takes to "condensed" is very hard to win back again. Our overseas competitors are "wise" to these facts, to use one of their own expressions. What is the milk position in the United States? There is a vast surplus, with the result that the prices paid to the producers for many months past have been very low indeed—considerably lower than in this country. The geography of the States and Canada is against selling most of the milk in the towns. There are thousands of farms too far away from the markets for the fresh milk trade, and so creameries, cheese depots, and condenseries have grown like mushrooms throughout the land. These factories can buy milk cheaply, and as they are mostly controlled by big companies, they are highly organised, and are capable of selling their products at a competitive price anywhere in the world. And they are not slow to grasp their opportunity.

I have recently been discussing the milk question with two Americans. The first, a lady experienced in Infant Welfare work, asked outright: "Are your big dairy companies doing anything to advertise milk?" The answer, of course, was "in the negative." "In our country," she said, "you cannot get away from them; wherever you go, you see pictures of bottles of milk until you just have to drink it for your peace of mind." Her remarks emphasise, not only the different methods of enlarging the market, but also those of handling the product.

The other American was a doctor, and a very keen Friesian breeder. He mentioned after learning the English market prices, that American producers are very much alarmed by the way that production has overtaken consumption. They have no wish to decrease production, so have entered on a big advertising and educational campaign to expand their home market. "Our consumption per head per day," he said, "is .78 of a pint." While developing their home market there is no reason to suppose that they will forget the world market overseas. Here, in England, our consumption is less than a quarter of a pint per head per day—hardly a third of the American standard, after allowing for the difference in the size of their pint.

Surely, with these facts before us, there is no need to say that the people of England will never drink more milk. But the essential thing is for every dairy-farmer and every distributor to realise that it is only by constant and continuous urging that the public will be persuaded to buy their wares. The time is ripe for a national advertising campaign, in the interests of producer and distributor alike, and also, indirectly, of the public.

F. ARNOLD LEJEUNE.

From "The Agricultural Gazette."

HOW TO JUDGE A DAIRY BREED. - I propose to lay down certain principles for the judging of a dairy breed.

Unlike a beef breed, a dairy breed has something which cannot be seen. The main purpose of a dairy cow is to produce milk, without which, in some degree of perfection, she has no claim to be included in the ranks of a dairy breed. The hitherto accepted method has been to judge dairy animals in the show ring on appearance, placing stress on qualities which are supposed to be indicative of milk. Of course, if indications are equal to performance so that they are one and the same thing, or substantially one and the same thing, then there would be no need to criticise our present dairy showyard system. But are they one and the same thing? The object of a showyard judging system is to hall-mark meritorious animals, to show to all interested the type of animal which should be produced, and to give confidence to breeders that the use of such animals will invariably assist in the improvement of their herds. Are breeders of dairy animals entirely satisfied that the present system of showyard judging has achieved these ends? I venture to affirm that a considerable number of interested people have had their doubts for a long time back. Most dairy show societies have indicated their doubts by attempts to set up milking performance or milking trials either separately or along with inspection judging. The expense and other difficulties of running such trials have caused many societies to depart from the experiment, but these experiments are evidence of well cherished doubts as to the completeness of the present system. Some societies have persisted in keeping up milking trials, particularly the Royal Society of England and the British Dairy Farmers' Association, the latter at what is known as the London Dairy Show. All the dairy breeds compete at that show. All animals competing are in milk. Separate in-milk classes are provided for each breed. In each class prizes are given to be awarded after inspection, and the same animals in each class compete again for the milking trial prizes. Do the same animals win in each competition? Are the awards in the milking trials merely a repeat of the inspection prizes? Examine the results at the last show taking the Dairy Shorthorns, where five classes were given and the entries in each class numerous. We find that in four of the classes, the first, second, and third prizes in the milking trials were taken by animals all lower than third in the inspection classes. In two of the four classes, the first prizes in the milking trials were won by animals which did not figure at all in the inspection prize list. In the fifth class, where the entries were less numerous, the first animal in the milking trials was second for the inspection prizes, the second first, and the third occupied the same position in each competition. Better results were shown in some of the other breeds, but again very few of the prize winning

inspection animals kept their place in the milking trials. These results demonstrate that merit after inspection and performance are not one and the same thing.

Most of you know of dairy breeders in the past who have preferred to select their sires not from showyard stock or stock with showyard ancestry, but from some herd where they knew that appearance and performance were co-existent. Suppose such a practice were to grow to any extent in any breed, it would tend to the decline of the show societies, and ultimately to the decline of the breed. A great dairy breed could not exist in that way. It must publicly demonstrate the qualities of its breed, and there is no better way of doing that than by impressing on the public the efficiency of its showyard stock both from the point of view of appearance and performance. Most of you will have followed the prices obtained in recent years for pedigree dairy stock, and you will have observed that while a good appearance animal made a good price, yet if added to good appearance there was big milking performance, or big milking records through dam and sire's dam, the good price advanced considerably. You want to make your judging system conform as nearly as possible to what a practical breeder would do when selecting an animal for his own herd. When your judging system is so adjusted that it stamps its winning animals with the hall mark of appearance and performance, it will have come near to a standard of perfection.

I advocate a system of showyard judging where performance as well as appearance will count. What, however, is the good of bringing in performance if you have no practical plan for testing performance? We in Scotland, at least, can solve that problem. We have had a system of public milk recording since 1903. For 10 years over 20,000 cows on an average have been tested annually for weight of milk and butter fat. In the present year over 25,000 cows were so tested. The Scottish scheme of milk recording may not be perfect, but it is easily the best scheme yet tried. Our English, Colonial and American friends all admit it. They wish they were in a position to operate our scheme. It is only in Scotland that milk recording may be said to be general to the effect that it is practicable to employ one person to go round a group of farmers, testing their herds from day to day. Even in England, the employing of one person to work a group is not very prevalent because of the distance between the various farms to form the group. For the same reason, the Scottish group system is inapplicable to the Colonies. They, therefore, get the farmers to weigh their own milk and send out an inspector now and again to check the weighings, and to test for butter fat. My contention, therefore, is that the Scottish milk recording system has reached such a stage of perfection that it can with advantage be harnessed to inspection judging so as to bear on performance. That is the view of the Ayrshire breeders, and what the Ayrshire breeders say to-day the

devotees of the other breeds will be saying to-morrow. It has to be borne in mind that the Scottish milk records are whole season records. They give the record of the cow from calving to calving again. They can afford successive records if you want it. In that respect, I submit, they are better as a record of performance than the 48 hours' milking trials hitherto adopted.

The next question is, How are you to harness appearance with performance? The Ayrshire breeders have laid down harnessing conditions for yoking the pair. These may not be perfect, but their attempt is the only one at the moment to solve the problem. They gave their scheme a trial trip at the New Show of February, 1921. As a result of their first experience the Council of the Ayrshire Breeders' Society have made alterations and modifications on their first standards of judging. The revised standards have been published extensively, and must be known to most of you. The alterations come to, however, had for their object the simplifying of the work of the judge. 65 points are set aside as the maximum for "appearance," and appearance includes every excellence that can be seen in the animal. 35 points are the maximum for milk yield or milking pedigree. The judge is to take as his standard of excellence for appearance the first animal in each class, and to award that animal the maximum points. The other animals in the same class he will point in the proportion their excellence bears to the first prize animal. If an animal is shown in two classes, it will be pointed again in relation to its excellence towards the first prize animal in the second class. The judge is to place the animals in the ring in the order of merit according to points for appearance. Thereafter the points for milk yield or milking pedigree are to be added to the points for appearance, and the animals finally placed in position for the prizes. That method was adopted in order to show to the public how the animals stood so far as appearance is concerned and what alteration milk yield or milking pedigree makes in the final placings. The new standards of judging have been termed a judging by points, and, according to old-established beliefs, a judge of animals is said not to be able to judge by points. It was not the intention to ride rough-shod over old beliefs, or even old-established prejudices. Points for appearance were instituted because it was found not to be practicable to measure performance except by a denoting figure. That is to say, points for performance must be shown by a figure; and if there is a figure for points for performance, you must have a figure for appearance in order to add the two together. After all, is it a very difficult task for a judge to set forth the excellence of the animal by way of a denoting figure? He is supposed to be able to value the animal in pounds sterling. Why is he unable to value excellence in a similar way?

The Ayrshire scheme further specifies a minimum and a maximum yield. That is to say, the minimum must be reached before any points are allowed for performance, and beyond the maximum no

further points are allowed. The latter provision was inserted to debar what may be termed freak yields or yields which may be said to have a tendency to undermine the constitution of the cow. We were told during the war that the average yield of cows in England and Wales was just about 400 gallons. It will take a long time to undermine the constitution of the cows with yields of 400 gallons. Some of our critics suggested a system of qualifying yields. That is to say, a certain milk yield was to be fixed in the case of a cow, and a certain milk yield for dam and dam of sire in the case of bulls and younger females, and the competing animals had to come up to the stated yields before entry could be accepted. Animals qualifying would then be judged on appearance only. Discussion on this point centres round what I may call the qualifying or datum line. If you take a low datum line over which almost any animal can jump then you are not giving any consideration to performance. If you take a medium datum line, and do not give progressive points for yields over the datum line, you are not permitting performance to pull its full weight. If you fix a high datum line for performance, then appearance may not be permitted to pull at all. Other critics say - Give us qualifying classes for various yields, say, 1,000, 900, 800, and 700 gallons. This would mean that a show society would have to provide four separate classes for every one class they had at present - for cows in milk, four for heifers in milk, and the same for bulls and heifers, according to age. A local society where all animals could be walked to the show, and where the prizes were nothing, or next to nothing, might undertake such a competition, but no society attempting a show for a breed or breeds could possibly finance such a classification. These are my objections to qualifying classes.

There is, however, one special objection raised to the Ayrshire scheme, and it is that sufficient allowance, as regards performance, is not given to animals reared on the high-lying and poorer lands. It has to be admitted that if all animals obtained their sole means of subsistence from the land they are raised on those on the better lands must have a distinct advantage in every respect. There cannot be absolute equality in any case. The present system of appearance judging does not give absolute equality. The better lands and pastures tend to earlier development, and give to animals in their earlier years an apparent advantage. Do we find that the prize-winning animals are all raised on the better lands? Everyone will admit that it is not so. How then is it that this apparent advantage is got over? The answer is--by artificial feeding, by better handling, and, particularly, by breeding a better type of animal.

It is ridiculous to urge that the same requisites which have hitherto equalised matters in the field of appearance will not do so when you enter on the arena of performance? My information from dairy cattle breeders is that in milk production it is the *cow*

that matters, and that other considerations are secondary. This is shown by comparing the records of cows raised on the best of lands with those raised on poorer land, often to the great advantage of the latter. You find it by comparing the yields of herds raised on adjoining farms where the lands and pasture are similar. Every dairy farmer finds it out in his own herd by examining the records of his own cows, where the cows are all grazed and fed alike. Nor are all the natural advantages with the animal raised on the rich and low lying lands. Such advantages as the latter give are derived mainly from a better subsistence. Greater effort to gather food, greater exposure to climatic conditions, tend to hardiness, more prolonged development, and consequent longevity. The latter characteristics play an important part in milk production. We are further told that it is easier to maintain type on the higher than the low lying lands.

I want the fusion of appearance and performance in the show judging ring. I want each to pull its full weight. I want them to be harnessed together. I do not wish them to pull separately. If you keep only milk production in front of you, you may achieve that end, but it may be at the expense of stamina, constitution, and form. If, on the other hand, you look only to appearance, the main function of a dairy breed may be forgotten. If you can combine them so that the invisible assets are there alongside the visible, you will make the work of the dairy breeder more easy. His problem is to mate so as to produce the combination. The greatest compliment to any showyard judging system would be that it is an aid and an incentive to the breeder.

JOHN HOWIE.

Extracts from "The Scottish Farmer."

DAIRY BACTERIOLOGY.—A text book of Bacteriology suitable for Dairy Students yet remains to be written. The majority of those who wish to study the scientific side of dairying have unfortunately not had any proper grounding in the elements of any science. Hence it is necessary for them to start from the very elements. The language is new, the subject is new, and the methods of observation are both new and delicate. In fact, faculties are called into play which in the ordinary course of education are often neglected. Students are told to look through a microscope at some red or blue spots, more or less clear, and are told these are bacteria. They have no idea of how very minute these organisms are nor of what a magnification of six or eight hundred times means. They need first to be made acquainted with the effect of magnification on various objects, until they can realise how infinitely minute bacteria are.

It were well if all students would remember the words of Sir Humphrey Davy— "Unless I have seen or handled a thing I know nothing of it." At the present day people are too apt to think that they know whatever they have read about. There is no greater error. All they know is that they have read certain statements about a thing. Whether those statements are true or false, *i.e.*, accurate or inaccurate, they can never know except by actually seeing or handling the thing they have read about. The value of any statement made or written, which a student is unable to verify for himself, must therefore depend on the ability, knowledge and actual experience of the author. Alas! in too many cases, books are written by men who have not had actual experience of the things they write about. They simply repeat what they have read and thus errors are copied for years, until someone prompted by the spirit which guided Sir Humphrey Davy seeks to know from personal examination whether the generally accepted statement represents an actual fact or not; alas, too often one discovers that it does not. All study then may be divided into two distinct branches, first, what to do and how to do it to discover facts, secondly, what to learn, *i.e.*, what are the facts others have discovered by these means. The student who hopes ever to obtain a real insight into any science must utilise both these methods, *i.e.*, the practical and the theoretical. In Bacteriology, of all sciences, it is essential that the practical should proceed with the theoretical. A description, therefore, of methods of practical work, which is not sufficiently detailed and precise to enable a student to work from it, is quite out of place in a book dealing essentially with facts observed rather than with how to observe them.

The elementary student can only hope to obtain a faint glimmer of the light which bacteriology throws upon the Dairy Industry. Hence it is essential to confine attention to the most important and generally accepted facts. A clear, practical and theoretical knowledge of the organism which produces lactic acid, that ubiquitous

organism of milk and dairy produce, should be the first consideration. Why did Pasteur, who first described it, call it the "dumb-bell bacillus." Every student with a little sour milk or whey has only to make a slide and examine it under a $\frac{1}{4}$ or $\frac{1}{8}$ inch objective probably quite as powerful an objective as Pasteur had—to know why. Nothing within the whole range of dairy bacteriology is more characteristic than the growth of this organism *in pairs* which thus gave origin to the name first given it by Pasteur. Then Lister, many years later, notices it in sour milk and describes it as an oval diplococcus, which also means "in pairs." This is the organism which has controlled all the dairy produce of the world until quite recently, and, in spite of the many attempts to improve dairy produce by the introduction of organisms which are not normally natural to milk, it is doubtful whether any better or even as good dairy products are obtainable to-day as were made in the past with the organism universally provided by nature.

These remarks have been prompted by the study of some books on bacteriology which have recently appeared, whose titles are given below.*

Neither of these will give the student guidance or instruction in practical work. That must be learnt first. But, to those who have gained such knowledge and desire to now become acquainted with the work of others, these books can be recommended.

Orla-Jensen's book is disappointing. The author is well known as one of the first dairy bacteriologists of Europe and the information in his book is both reliable and most valuable to the advanced worker. It would, however, be of little help to the ordinary student, and the attempt to make it suitable to both detracts from rather than adds to its value. In a work for the student it is necessary to sharply define between the ordinary and the extraordinary organisms met with in dairy produce; otherwise he forms an entirely false idea of their relative importance and frequency. The author does this to a certain extent in a chapter on the normal and abnormal microflora of milk. It goes without saying that a book written by such an authority contains much valuable information, but it does not fill the void which we drew attention to in our opening remarks.

Marshall's "Microbiology" covers the whole range of Bacteriology and is probably the best general treatise extant on this subject. It is purely descriptive and to the agricultural student will be of special value for its treatment of the microbiology of the soil and of the diseases of animals and plants. The section, however, which we are specially interested in is that dealing with the microbiology of milk and milk products. It contains four chapters, devoted respectively to Milk, Butter, Cheese, and Special Dairy Products. Each section is written by one or more specialists. With regard to Milk the author says: "The ideal milk is that which reaches the consumer in as nearly as possible the condition in which it leaves the udder of the healthy cow.

* *Dairy Bacteriology*, by Professor Orla Jensen.

Microbiology, by C. E. Marshall (and many other contributors).

"The factors which determine the quality of commercial milk may be stated as follows: (a) Food value, (b) flavour and odour, (c) keeping quality, (d) cleanliness, (e) healthfulness. With the exception of the first, all of these qualities are in part or wholly dependent upon the microbial content of the milk." As this book emanated from America the subject of clean milk is well dealt with and the advice as to methods of preventing contamination of milk are brief, but excellent. It is often supposed that only milk intended for sale needs the care in its production associated with the term "clean" milk. There is no greater error. Most failures to produce the best butter or cheese are due to want of cleanliness in the milk used for their manufacture.

The sections on the relation of micro-organisms to Butter and Cheese are well up to date.

To those who are familiar with the work of the past, they indicate some of the many changes which have gradually come over the views, held not so many years ago, regarding some of the problems connected with the bacteriology of Butter and Cheese. One is pleased to note that the authors are not too dogmatic, "it is believed" taking the place of that assertion which less able writers are so fond of indulging in.

As regards cheese there is yet much to be learnt. It is over twenty years since the main facts regarding the bacteriology of cheese, so far as aerobic organisms are concerned, were made known. It is evident that the changes which take place in ripening, certainly in all the hard cheeses, are taking place under anaerobic conditions. What anaerobic organisms are at work, and what are the chemical changes which they bring about under these anaerobic conditions, seem to be questions still unanswered, and which few if any attempts have been made to answer.

Evidently there is still a vast field for research in Dairy Bacteriology.

F. J. LLOYD.

THE DAIRY SHOW OF 1921.

By SAMUEL R. WHITLEY.

The last two Dairy Shows were both held under the shadow of great strikes—in 1919 if the railway strike had lasted three days longer the Dairy Show would have been impossible, and in 1920 the Show was held during the great coal strike, but both Shows were eminently successful. In 1921 there were no actual strikes looming ahead, but the general financial depression which had already existed for several months caused the Council to be anxious about the attendance of the public; this anxiety, however, was soon dispelled, and in every way the 1921 Dairy Show may be considered as an unqualified success.

All available Stand space was let several months before the Show and many applications had to be refused. When the competitive entries came to hand, they were much in excess of any previous year, and in the Poultry Department it was necessary to return 500 entries for which it was impossible to find room.

The entries of cattle, totalling 455, were 70 in excess of last year's record, which exceeded the previous year by 90, and it was fortunate that the Council had planned in advance to erect two extra rows of cattle stands. This enabled the cattle to be housed without undue crowding, but the strain on the Milking Trial and Butter Test Judges was excessive, and it may be well to explain here that in each of these departments, if a fair comparison of Breed with Breed is to be obtained, it is not possible to duplicate the Judges, that is, one hand must take all the samples, one eye must read all the weights of milk, and one eye must carry through all the delicate operations necessary to find the quality of the milk. In the writer's opinion, the extreme limit of the number of cattle in these tests has been reached, and it is desirable that the number entered for these most valuable tests should be reduced rather than increased, and only the absolute best in the Country should be encouraged to come to the London Dairy Show.

With the object of encouraging Milk-Recording throughout the year, and also of working harmoniously with the Central Council of Milk Recording Societies, the British Dairy Farmers' Association offered for the first time special classes for Milk-Recorded Cattle; but it was found that most of the officially recorded cattle were entered in the ordinary classes, no doubt in order that they might compete for the valuable Challenge Trophies, depending mainly on the results of the Milking Trials and Butter Tests.

During the Show it was found that about 90 per cent. of the cattle entered in the Milking Trials and Butter Tests were already being recorded throughout the year by one or other of the official Milk Recording Societies. It has been suggested that in future only officially recorded cattle should be allowed to compete in the important classes at the Dairy Show. At the time of writing this report, the Council has taken no decision in the matter, but the objects of the suggestion are two-fold:

- 1st to give encouragement to those who by Milk Recording are endeavouring to improve the production of milk throughout the Country, and
- 2nd to get only the very best Dairy Cattle at the Dairy Show, with a possible small reduction of cows entered.

The general arrangements of the Show were similar to those of previous years, except that the Goats had a small Hall to themselves at the extreme end of the Gilbey Hall. The Shepherds' Room was again available for the comfort of the Herdsmen, but was scarcely patronised the fact is that the herdsmen in charge of these valuable Dairy Cattle are unwilling to leave their animals and prefer to sleep by them. Efforts to provide refreshments for the Herdsmen on the premises in the early morning were unfortunately frustrated.

The Show was again well patronised by the public, and the gate money exceeded any previous record.

Business at the Stands was considered fairly satisfactory, though not equal to that of the two previous Shows.

The Milking Trials and Butter Tests were carried out on Monday (prior to the opening of the Show) and Tuesday, as in 1920. The experience of two Shows has now proved that this has many advantages over previous arrangements. In spite of the large number of entries and the heavy work put upon the Judges, the results were obtained in good time and materially added to the interest of the Show. Again on the Sunday previous to the Show all the Cows and Goats entered in the Milking Trials were weighed in order that a comparison may be made between the weight of the animal and the weight of her milk yield in 24 hours.

The usual demonstrations in Soft Cheese Making were held throughout the Show, but the demonstrations in Hard Cheese Making and in the making of Goat-Milk Cheese were not carried out. The Junket-making Contest was again successful. Demonstrations in Junket making added interest to the Show, while all junkets that could be made were very readily sold.

The extreme heat experienced during the first two days of the Show was detrimental to the Cattle and produce and a source of discomfort to all engaged at the Show.

The following table gives details of the twelve previous Shows:—

THE FOLLOWING TABLE GIVES COMPARATIVE DETAILS OF THE ENTRIES AT THE DAIRY SHOW WITH THOSE OF THE PAST TWELVE YEARS.													
	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1919.	1920.	1921.
Cattle	240	237	247	232	288	222	210	286	234	204	292	384	455
Milking and Butter Tests	247	245	224	236	264	213	209	265	167	198	334	492	614
Goats	51	48	72	84	75	81	105	110	85	116	115	109	101
Poultry	3,347	3,081	3,280	2,997	3,259	3,300	3,350	3,840	3,089	2,653	2,736	4,317	4,348
Pigeons	2,573	2,664	2,564	2,282	2,280	2,226	2,496	2,467	2,291	2,735	2,760	3,259	3,272
Poultry and Pigeon Appliances	55	65	50	37	—	—	—	—	—	—	—	—	—
Cheese	255	420	357	355	362	249	343	395	301	271	342	462	406
Bacon and Hams ...	39	57	76	55	104	58	71	89	67	45	—	34	56
Butter	578	593	668	535	525	484	618	549	371	339	242	286	322
Cream	42	35	47	42	47	26	48	43	27	20	16	19	32
Skim-milk Bread, &c	159	118	135	115	98	72	83	64	46	65	40	40	—
Honey, &c.	118	67	85	88	96	87	95	106	126	77	20	49	63
Bottled Fruits and Vegetables	—	—	—	—	—	—	—	—	—	—	—	45	25
New and Improved Inventions	17	33	37	31	34	21	25	41	24	6	23	14	38
Roots	156	177	181	218	196	172	190	190	59	51	80	144	148
Buttermaking Contests	199	200	207	120	145	165	165	141	97	101	110	86	162
Milkers' Contests ...	121	135	132	126	122	153	119	137	85	82	77	80	98
Junket-making Contest	—	—	—	—	—	—	—	—	—	—	—	7	8
Colonial Produce ...	—	—	—	—	—	—	—	—	—	—	—	2	2
	3,197	8,175	8,362	7,553	7,895	7,529	8,127	8,723	7,969	6,963	7,187	9,229	10,150

CATTLE.

Practically all the chief Dairy Breeds were well represented. The South Devons, which were conspicuous by their absence last year, were again able to put in an appearance, and the Ayrshires, after an absence of several years, had a small class of exceptionally good animals, but the Welsh Black Cattle, after making an entry, were unable to turn up.

Class 1, for Dairy Shorthorn Cows (entered in or eligible for Coates' Herd Book, or its Pedigree sent for such entry previous to the Show, born on or previous to August 1st, 1916), brought 25 entries, which were a grand lot of Dairy Cows, thoroughly representative of the dual purpose type.

Class 2, for Cows of similar qualifications but younger (being born between August 1st, 1916, and August 1st, 1918), contained also 25 entries, all of excellent type.

Class 3, for Pedigree Shorthorn Heifers, had an entry of 32, and showed great promise for the development of future Dairy Cows.

Class 4, for Dairy Shorthorn Cows not eligible for Classes 1 and 2, brought a very good class of 18 entries.

Class 5, for Dairy Shorthorn Heifers not eligible for Class 3, brought 12 entries of excellent type.

Class 6, for Lincolnshire Red Shorthorn Cows, entered in or eligible for the Herd Book, brought 13 entries of exceptional quality. The first for inspection and in the Milking Trials was Mr. John Even's "Burton Fillingham," with the fine record of 157.1 points.

In Class 7, for Lincoln Red Heifers, the first prize for inspection and also for the Milking Trials was won by the same animal, viz., Mr. S. Reading's "Langford Polly," and this class averaged more milk than any other Heifer Class in the Show.

Class 8, for Jersey Cows, entered in or eligible for the Herd Book, as usual brought large entries, but there was a large proportion of absentees in all the Jersey Classes. This Class was a good one, fully up to the form shown in recent years. The first three animals were exceptionally fine examples of the Breed, and nearly all the winners by inspection were well up in the Milking Trials and Butter Tests.

In Class 9, for Jersey Heifers bred in Great Britain or Ireland, only 10 out of 20 entries paraded. They were considered by the Judge to be of fair average merit, with the winner standing right out from the rest.

Class 10, for Island-bred Heifers, was a good one—the first three winners running one another very closely.

Class 11, for Guernsey Cows born previous to August 1st, 1916, brought 13 entries, of which 7 put in an appearance before the Judge—a good class, of which the winner, Mrs. Jervoise's "Lady's Maid II

of *Ville au Roi*," was also first in the Milking Trials, making the excellent score of 124.1 points, and thus gaining the Stagenhoe Cup.

Class 12, for Guernsey Cows born between August 1st, 1916, and August 1st, 1918, were an even lot, but with not quite the same Dairy qualities as the previous class.

Class 13, for Guernsey Heifers born after August 1st, 1918. This Class was the best feature of the Guernseys and showed remarkable improvement compared with a few years ago. The second prize for inspection (Mr. Body's "*Lynelmere Rosy*") was first in the Milking Trials, with points almost equal to those gained by the winner in the preceding class of Cows.

Class 14, for Red Poll Cows born previous to August 1st, 1916, with 12 entries, all of which were present, was a strong class led by Mr. Joseph Watson's "*Gressenhall Molly*," still giving 4 $\frac{3}{4}$ gallons of milk per day, though calved in March.

Class 15, for Red Poll Cows born between August 1st, 1916, and August 1st, 1918, brought 13 entries, nine competing a very strong class of dual purpose animals.

Class 16, for Red Poll Heifers born after August 1st, 1918, was also a strong class. Mr Joseph Watson, of Sudbourne Hall, Oxford, had the unique honour of winning in all the three Red Poll Classes, though competition was keen and the animals shown were distinctly of the Milking type.

Class 17, for Devon Cows. This breed is the Cinderella of the Dairy Show and did very well to have nine entries, of which eight were present. They were all good specimens of Dairy Cattle, and the winner in the Milking Trials made the excellent score of 132.5 points.

Class 18, for South Devon Cows. There were six entries and five put in an appearance. The Judge reports that they were not lacking in quality, but he expected a larger number. The winner of the Milking Trials was Reserve for inspection and made the creditable score of 143.6 points.

Class 19, for Ayrshire Cows, brought four entries, only two of which appeared. It is a very expensive business to send cows to London from Scotland, and one is glad to see this Class putting in an appearance after an absence of several years. Such an excellent Dairy breed ought to be represented, though the distance and the fact that they are primarily a Cheese breed and mostly calved down in the Spring, will always make it difficult to get together a representative Class. The two present the Judge considered useful types, with good milking characteristics.

Class 20, for Kerry Cows, brought 21 entries, and was certainly the strongest class of Kerries ever seen at the Dairy Show. The Judge reports "a good class with great milking capacity," but sounds a note of warning that there is a tendency towards coarser and thicker characteristics than should be found in the true Kerry.

Class 21, for Kerry Heifers, had 10 entries, but only five came forward, which were all of good quality, the winner promising to make a really good and rich Dairy Cow.

Class 22, for Dexter Cows, had seven entries, but only four present they were typical animals. The first prize for inspection also won the Milking Trials with 89.06 points.

Class 23, for Dexter Heifers, had to be cancelled.

Class 24, for British Friesian Cows born before August 1st, 1916 (entered in or eligible for the Herd Book), brought 23 entries, but only 10 paraded before the Judge. They were reported as a very strong class of typical heavy milking Friesian Cows, and undoubtedly included some of the best milk producers in the Country, combining quantity and quality of milk in a remarkable way--the third prize for inspection gaining the large score of 173.8 points in the Milking Trials, and so obtaining the Barham, Spencer and Shirley Cups.

Class 25, for British Friesian Cows born between August 1st, 1916, and August 1st, 1918, had nine entries, but only four paraded--all of good Dairy qualities.

Class 26, for British Friesian Heifers born after August 1st, 1918, had 17 entries, but again there were many absentees. In quality and true Dairy character, they left little to be desired--it will be interesting to follow the milking career of these animals. While the Friesian Cow class surpassed all others in the Milking Trials, this class for Friesian Heifers was outdone by the Lincoln Red Shorthorn Heifers.

Class 27, for Welsh Black Cattle, would have been an innovation at the Dairy Show, but it had to be cancelled at the last moment.

In Classes 28 to 35 a special effort was made to encourage Cows which had obtained a definite official Milk Record. As nearly all these animals wished to compete in the Milking Trials and Butter Tests, and also wished to be in the running for the various Challenge Trophies, they were mostly to be found in their respective Classes from 1 to 27. Hence in the opinion of the writer these classes hardly fulfilled the purpose for which they were initiated, as in practically every case the judgment was merely a repetition of what had gone before. This matter will doubtless receive the careful consideration of the Council. It has been suggested that none but officially recorded cattle should be eligible to compete at the London Dairy Show, and the Council would welcome opinions on this suggestion; but if it is to be carried out, it would seem to demand that a larger proportion of those who have made Milk Recording such a success should come in and support the British Dairy Farmers' Association by taking up membership.

A splendid collection of Dairy Cows was got together in Classes 36 and 37--the Cows in these classes are needed for the Milkers' Contests and so cannot enter for the Milking Trials and Butter Tests, but one would naturally like to have some official record of their performances at the pail.

The Bledisloe Challenge Trophy for the best exhibit of all-round Dairy Cattle was eventually awarded to the British Friesian Society, with the non-pedigree Shorthorns as reserve.

There were novel features in this team competition, and it may be well to state how the result was arrived at. The first six of each Breed in the Milking Trials automatically represented their breed—these were paraded before the Judge, who had before him the figures as to the quantity and quality of milk obtained in the Milking Trials. These Milking Trial figures accounted for 70 per cent. of the marks allowed, while the remaining 30 per cent. of marks was allotted by the Judge for constitution and general usefulness. Under this system of judging the non-pedigree Shorthorns gained under the latter heading, but the Friesians had too long a start on Milking Trial points to be caught up.

BULLS.

Again for the third year in succession, Mr. Robert Mond has offered his valuable Challenge Shield for the best Bull, to be judged by the Milking propensities of his stock. How else should a Dairy Bull be judged? And yet there are no entries. Up to the present this handsome trophy has been restricted to Pedigree Shorthorns, but if the Breeders of Pedigree Dairy Shorthorns are not sufficiently awake to judge their Bulls in this way, surely it is time this trophy was thrown open to other breeds. In other Dairy Countries this method of judging Bulls has greatly increased the milk yields. We kill our Bulls before we know what their value is—Wake up, old England!!

The two Classes 38 and 39, for Dairy Shorthorn Bulls of different ages, were well filled with animals of good type, and bred from sires and dams that have done something in the Dairy world. We must *hope* that the resulting progeny will show improvement at the pail, but we do not *know*.

In the class for Jersey Bulls there were only two entries—the winner being reported as an animal of fine quality.

In the class for Friesian Bulls there were only two entries, both of which were well spoken of by the Judge.

Class 42, for a Bull of any other pure breed, brought entries of three Guernsey, three Red Polls, and one Lincoln Red, and in each section the Judges considered the winner worthy of a B.D.F.A. Silver Medal.

SHE-GOATS.

This year the small Hall at the end of the Gilbey Hall was given up to Goats, and being by themselves they seem to have had fairly comfortable quarters, though it was a tight fit to get them all in. The numbers for several years past have kept constant, round about 100, but the entries in the Milking Trials tend to increase, and totalled 26. Several high yields were recorded, and the Dairy Show record of 10·8 lbs. of milk in 24 hours was this year beaten by Miss Pope's "Problem of Bashley," which gave 11·3 lbs. as an

average of the two days' yield. It is suggested that a Milking Competition for Goats recorded under the Ministry of Agriculture's scheme should be provided, and, if the limitation of space requires, that the classes for Kids should be withdrawn and an extended classification for Goats and Goatlings be given.

CHEESE.

The total entry of Cheese was down 56 when compared with 1920, but that was the record number—406 entries compares very favourably with the entries of the last twelve years.

Stilton Cheese made a particularly good show and the classes contained a great deal of cheese of particularly fine quality. A few lots showed discolouration, but this fault was less prevalent than usual.

Cheddar Cheese. Several of the exhibits plainly showed that they had been adversely affected by the extreme heat during the summer, more especially those coming from the West of England. Two or three dairies of English Cheddar were of outstanding merit, and two first prizes went to England against one to Scotland. Scottish makers are said to have greatly improved their methods of manufacture, and are now turning out a cheese much softer in texture; in consequence they are finding a more ready market in the South. In the matter of finish the Scots leave their English competitors far behind, and it is a pity that some makers in the South are content to turn out their goods in what the Judge considered a slovenly condition.

The Colonial Cheddars formed a very creditable class, the great majority of the exhibits showing excellent quality and appearance, the first prize cheese being a specially fine sample. The African exhibits were characterised by wonderful body, though rather lacking in flavour. Unfortunately, the only Australian entry arrived too late.

The Cheshire Cheese section was reported as quite the best ever got together at the Dairy Show. All the classes were very fine in quality, texture, and colour, and it is pleasing to record a substantial revival in this section.

A small class of Leicester Cheese did not impress the Judge, who found several cheeses tainted and lacking in the right Leicester Cheese flavour.

A small entry of Lancashire Cheese were all found to be of excellent quality, with the prize-winners of outstanding merit.

The Derby Cheeses were a good small class of eight exhibits, with quality on the whole particularly good. Two or three of the exhibits, though good cheese, had the Cheddar rather than the true Derby flavour.

Double Gloucesters brought eight entries, the first prize of which the Judge considered the best he had examined for many years. A few of the others were a little too soft and hardly ripe.

Single Gloucesters brought a small class of only medium quality,

being indifferent in colour and too soft in texture, though the first prize lot was of good quality.

In the class for Caerphilly Cheese the Judge reports that amongst an entry of 19 there were few cheeses possessing the Caerphilly characteristics, though the prize-winners were excellent, the first prize-winner being richer than the rest.

The class for Wensleydale Cheese was not a strong one, there being only seven entries, several not being "Blue-moulded," and here again a number showed a yellow discolouration.

Classes 74, 75, 76, and 77 for Smallholder Pressed Cheese are reported as not of high-class quality, though the winner of Class 75 showed excellent cheese of true Smallholder qualities. Generally there was much unevenness in the different lots.

Class 78 for Smallholder Pressed Cheese (quick ripening) was a fair class as regards quality, but most of the exhibits had suffered from too high a temperature during the ripening period, and in consequence the flavour was too sharp and the cheeses a little dry. Three entries were of the Caerphilly type and should not have been entered in this class.

Class 79 for Smallholder Pressed Cheese (long keeping) was well filled, and the first prize was excellent in every way, and eventually won the "Walker" Challenge Cup for the best exhibit in the Smallholder Pressed Cheese Classes. The other prize-winners were good, but amongst the rest several were not of good flavour, the class as a whole being inferior to that of last year.

Class 80. The Inter-County Competition for the best collection of Smallholder Cheeses made by the persons who have received instruction in Cheesemaking at a County Council Travelling School during 1918-1921 created great interest, though there were only eight competitors against 12 last year.

Some really excellent cheeses were staged in this class, and considering the short duration of the instruction given, and other difficulties, the standard attained was remarkable. The Counties attaining greatest uniformity in texture and flavour were those that limited themselves to one variety of cheese. In the short courses of instruction it is almost impossible to get good results in more than one variety of cheese. The Judge suggests rather more definite wording for this class in future.

In Cream Cheese, Class 81, the Judge reports excellent packing, but generally not high quality. The first prize was highly creditable, but the second prize lacked refinement and finish.

The unripened Soft Cheeses, Class 82, were all well packed and nicely presented. The prize-winners were good, but generally there was too much moisture in the Cheeses.

BACON AND HAMS.

In 1919 these classes had to be cancelled owing to the lack of entries; in 1920 they were restarted, but the entries were only small;

in 1921 the classes are getting back to their pre-war standard, but there is still room for greater numbers. The Judge makes special reference to the improvement in the Colonial bacon, practically all of which came from South Africa; he also welcomes the fact that English Farmers are taking more interest in the breeding of the right kind of pigs for the London trade. To encourage this interest amongst farmers and pig specialists, the Council of the British Dairy Farmers' Association offered prizes to the Pig Breed Societies who would cause six Bacon Pigs, true to their respective breeds, to be sent for curing to one Bacon curer, so that all might be cured exactly alike and eventually judged at the Dairy Show by London Buyers. Four Breed Societies were brave enough to enter for this competition, but the Society which had the largest share in arranging the details withdrew.

The class is reported on elsewhere by Professor K. J. J. Mackenzie, so that it is not necessary to say much here beyond stating that the two London Judges awarded first prize to the Large Black Pig Society, and second prize to the Gloucester Old Spot Society. The Council will welcome suggestions as to how the future usefulness of this class can be increased.

Professor Mackenzie very kindly undertook to represent the B.D.F.A. at the factory, and lectured during the Show on Prime Bacon Production to large and keenly interested audiences,

BUTTER.

The entries of Butter showed a considerable increase when compared with the two last Shows, but are still a long way short of the pre-war standards.

The exhibits in the 2-lb. Classes (Nos. 96-101) were, with one or two exceptions, neatly and well made up, looking more uniform than in previous years; but there was a lack of flavour, no doubt due to the hot dry weather, and a few exhibits were slightly overworked, others contained an excess of moisture. The exhibit winning the Elkington Cup, while a little defective in make up, was very good, and possessed a marked creamy flavour - this victory for Miss Hare, of Burghelere, near Newbury, was all the more creditable as she had not previously won a prize at the Dairy Show.

The boxes of Factory Butter, Classes 102-105, were very poorly represented, due, no doubt, to the disturbed state of Ireland, whence most of the entries usually come. The few exhibits from Ireland generally lost points owing to excess of moisture.

The two classes for Fancy or Ornamental Butter were somewhat spoilt by the extreme heat, only two competing in each class, but very fine workmanship was shown, and the exhibits were, as usual, a great source of interest and attraction.

The Colonial Butter Classes again brought strong entries, viz., 53 for the Salted Class and 45 for the Unsalted Class, a considerable increase on last year. Entries from New South Wales again predominated, Queensland coming second. Very good butter was

shown, but the exhibitors are apt to leave insufficient time for transit, and if any small block occurs they are too late for competition.

CREAM.

An excellent class of Clotted Cream is reported, the two prize-winners being close together, but well ahead of the rest. Several sent in scalded separated cream, which, strictly speaking, is not "Clotted Cream." The class for Cream other than Clotted was well filled, but some samples were spoilt by the extreme heat.

BOTTLED FRUITS AND VEGETABLES.

These were again a source of considerable attraction, and the Judge reports great improvement in quality, grading and packing. The heavy cost of carriage kept many from exhibiting. A new class is suggested for members of an Allotment, Agricultural, or Horticultural Society, the members contributing to one Exhibit. The Lectures and Demonstrations again proved extremely popular, and were always well attended.

HONEY.

Honey and Wax seem to be on the up grade, though not equal in numbers to seven or eight years ago. It is to be hoped that the increase tends to show, at any rate, a partial recovery from the ravages of the Isle of Wight disease. It was a good year for Honey, and the home produced exhibits showed this in quantity and quality. The class for Colonial Honey was not well filled.

ROOTS.

There was an excellent show of Roots in spite of the abnormally dry weather. The classes for Mangolds were well filled and of first-rate quality.

The winning Swedes as usual came mostly from the North. The collections of Roots, &c., for Cattle feeding in Winter made a fine display, the winners being difficult to differentiate.

JUNKET-MAKING.

As last year, a Junket-making Competition was arranged in the Centre Dairy. This was a very good competition and the work done excellent. It is suggested that in future a special class be arranged for previous prize-winners, and that they be debarred from competing in the ordinary class. Junkets were very popular and easily sold.

BUTTER-MAKING CONTESTS.

These were again a source of great attraction, the numbers competing almost doubling the previous year, and the space was taxed to the utmost to get them all in. The extreme heat on the first two days of the Show made work very difficult, but it was throughout satisfactory.

In the Championship Contest there were 17 entries, and the work done reached a very high standard. The work was so equal that it was difficult to place them, and often only a fraction of a mark separated them. In order to further test the competitors, the Judge asked each competitor to pack a pound of Butter in grease-proof paper- in this they showed considerable weakness.

MILKERS' CONTESTS.

The entries showed an increase of 18 on last year, and the interest was well maintained. The Judges report very good work in all the classes, and several extra prizes were recommended. In the final of the Championship Contest it was very difficult to separate two brothers, both of whom were excellent milkers.

NEW INVENTIONS.

The number of entries under this heading showed a great increase over recent years, and has only twice been exceeded in the past 20 years, 38 being entered, of which 36 were forwarded.

This increase is most satisfactory and shows that Dairy Inventors have almost, if not quite, recovered from the war period, and whilst there was no invention of an epoch-making character, yet there were several of distinct ingenuity, and it is satisfactory to think that inventive minds are paying attention to, and endeavouring to improve, some of the oldest, simplest, and most commonly used dairy utensils.

Silver medals were awarded in nine cases, and bronze medals to four entries, the first silver medal being awarded to A. Grabham & Co., 139, Englefield Road, Essex Road, London, N.1, for an improved apparatus for cleansing and sterilising milk bottles. This machine had previously been awarded a silver medal as a bottle washer, but it has now been greatly improved by the addition of an ingenious automatic steriliser which rises as the cases of bottles pass over it, and injects steam from jets right into the interior of the bottles, thus effectually sterilising them.

Irish Dairymen, Ltd., of 30, Lower Abbey Street, Dublin, gained a Silver Medal for their "Westfalia" Direct Drive Power Cream Separator, one of the largest, if not the largest, on the market, with a capacity of 1,100 gals. per hour. This reduces cost and saves labour. It has a great advantage in that pulleys can be fitted to drive it from either side of the machine; other good points being the large slime chamber, improved oiling arrangements, and the bowl can easily be taken apart.

The Eagle Range and Grate Co., 127, Regent Street, London, W.1, showed their Patent Eagle Premier Range and Semi-Independent Boiler, gaining a Silver Medal, the chief feature being a wrought-iron back boiler, with a central flue, the boiler being square in section; this gives greatly increased heating power for boiling water, the heat playing on the four interior sides as well as the front of the boiler,

which is the back of the main fire ; this is important, of course, on a dairy farm ; the front fire can be drawn, and the back boiler fire maintained only for hot water production, and in the back fire house-hold refuse can be burnt and thus got rid of.

Perhaps the most striking winner of a Silver Medal was the Patent Hygienic Milk Churn, exhibited by Sidney Hole, Yew Tree Farm, Albourn, Hassocks, Sussex. A rubber ring on the lid, which on pressure works out of its groove or seat, into a slightly larger groove or seat, with corresponding grooves in the neck of the churn, gives a tight spill-proof and dust-proof joint automatically, and the churns cannot then be opened without the use of two simple and very inexpensive levers, the whole idea is most ingenious, simple, easily cleaned, and efficacious, and must save a great waste of spilt milk in transit.

Those well-known Refrigerator Makers, Lawrence & Co., Ltd., 132-138, Latimer Road, North Kensington, London, W.10, gained a Silver Medal for their Improved Capillary Hygienic Refrigerator, a very fine and substantially made cooler ; the essential point claimed for it being that once the milk is turned on it is cut off from the outside air by using on top a feed-pipe instead of an open trough, and by closing the front with a number of hinged doors, the receiving trough at the bottom can also be closed in ; thus the possible contamination from outside sources is reduced to a minimum.

The Dairy Supply Company's exhibit of an "Astra" Pasteurizer gained a Silver Medal, the new principle being the use of retarding walls, furnished with cream stirrers, &c., This was a well-constructed useful machine, the milk is not unduly retained in one position, but kept in continuous flow through the jacketted vat.

Sutherland, Thomson & Co., 31, Tooley St., S.E., gained two Medals, a Silver medal for their Aluminium Starter Can, jacketted for hot and cold water circulation ; a simple and useful appliance which is proving useful in modern dairies where "starters" are in constant use. The can is time saving, the operator can control the temperature, it is easily cleaned and taken apart, and has a removable stirrer and ventilated lid.

For their Milk Thermolactometer this firm was awarded a Bronze Medal. This was a compact outfit in case, provided with a cheap correct densimeter on which the thermometer and specific gravity scale can be read at the same time without being lifted from the milk.

E. B. Turpin, of Macclesfield, gained a Silver Medal for a Monarch Cheese Press Mould with attachments ; this invention providing mechanically continuous pressure on the cheese, a spring in the head part of the frame of the press, on turning a handle, causes pressure on the cheese, the exact amount being shown on a scale on the press frame. By simple adjusting or extending links, one, two, or more cheeses

can be pressed at the same time. The whole idea is ingenious, simple and effective.

The remaining Silver Medal was awarded to F. G. Phillips & Son, of Goodwin Street, Finsbury Park, N., for their improved Bottle Filler, a cheap and simple attachment for a cooler, by which one or more bottles can be filled at a time. This invention is easily cleansed, and should prove useful in dairies doing a trade in bottled milk.

Bronze Medals were also awarded as follows :—To Hugh Stevenson & Sons, Ltd., Summerstown Works, London, S.W., for their Corniganza Wireless Seal Cap for Bottled Milk—these inexpensive paper or parchment caps are clamped or fitted to the bottle neck by an electric sealer on a large scale, or by gas heating in a smaller dairy. No cardboard disc is necessary, and they are much cheaper than the existing disc and wire, and very efficient.

To Harris, Underhill & Co., Ltd., of West India House, Baldwin Street, Bristol, for their Heavy Seed Grinder (Type C)—which machine is of high capacity with a low power, has a central bearing and reversible undercut plates, which retain their sharp edge well; large white metal bearings reduce friction, and can be run at a high speed.

To A. J. Clare, of Market Place, Wells, Somerset, for the “Clarilac” Milk Filter, a simple, light and easily cleaned strainer, seamless, and very suitable for using with railway milk churns.

THE DAIRY SHOW MILKING TRIALS OF 1921.

By J. MACKINTOSH, O.B.E., N.D.A., N.D.D., National Institute for Research in Dairying.

THE Milking Trials at the 1921 Dairy Show were the most extensive and in many respects the most interesting of the long series of trials which have been held annually (with the exception of the war years 1916-17-18) since 1880.

In almost every trial one or more of the records of previous years is broken, but in 1921 new records were set up in a large number of the sections of work comprising the trials. In order to facilitate comparison the chief records made in 1921 are set out below :

Number of Entries.—341 cows and heifers and 34 goats compared with 290 cows and heifers and 33 goats in 1920.

Number of Competitors.—For a variety of practical reasons the number of animals actually present in the showyard is always somewhat less than the number of entries. In 1921, 220 cows and heifers and 30 goats competed, as against 183 cows and heifers and 27 goats in 1920. The number of entries and competitors in each class of cows and heifers is given in Table I (page 81).

Number of Samples Analysed.—500 in 1921, compared with 420 in 1920.

Number of Breeds Represented.—Eleven breeds were represented and had the entries in the Welsh Black Class come forward the number would have been twelve. At previous shows the highest number of distinct breeds has been nine.

Highest Points Gained by a Cow.—One cow—a British Friesian gained 173.8 points, compared with a previous best of 169.5 points gained by a non-pedigree Shorthorn in 1912.

Highest Milk Yield.—For the first time in the history of these trials a milk yield of over 80 lbs. on the average of the two days has been attained; the British Friesian Cow "Hedges Friesland Queen," the property of Messrs. A. & J. Brown, giving 82.3 lb. milk. The highest yield at one milking, however—47.6 lb.—was given by the non-pedigree Shorthorn, "Golden Sovereign," exhibited by Sir William Hicking, Bart.

The increase in the number of entries materially increased the amount of analytical work and consequent calculations. The sampling and the analysis was, as usual, in the capable and

experienced hands of the Association's Consulting Chemist, Mr. F. J. Lloyd, F.I.C., and in view of the mass of work to be done, and the need for issuing the results of the trials as soon as possible it was most fortunate that an additional judge, in the person of Mr. T. J. Drakeley, M.Sc., F.C.S., F.I.C., of the Northern Polytechnic Institute, had been appointed.

Following the precedent of 1920, the Milking Trials were held on Monday, October 17th and Tuesday, October 18th, the latter being the first day on which the Show was open to the public. On Sunday, October 16th, all cows and goats competing in the trials were weighed and the average weights for the different classes, 1920 and 1921 are given in Table II (page 82). So far as the Milking Trials are concerned another year's experience emphasises the advantages which follow from holding the trials earlier in the week. The Judges are able to commence and carry on their work under quieter conditions and, in spite of the increase in numbers, to issue the results in the third day of the Show. Should the number of animals entered for the trials continue to increase it will be necessary to consider carefully how the work may be expedited. The Milking Trials are at present and must remain one of the chief features of the Show. They afford an opportunity of a unique kind for comparing the performances of animals in the same class and of the different dairy breeds. Competition between owner and owner and breed and breed grows keener year by year and in the writer's opinion, the Society should, if necessary, provide greater facilities for the work of the Trials rather than contemplate measures which would lessen the number of entries or competitors.

The points gained in the Trials and on which the prizes and the majority of the cups were awarded were on the basis of former years, namely: -

One point for every 10 days since calving, deducting the first 40 days, with a maximum of 12 points.

One point for every pound of milk, taking the average of two days' yield.

Twenty points for every pound of butter fat produced.

Four points for every pound of solids other than fat.

Deductions.—Ten points for each time the fat is below 3 per cent.

Ten points for each time the "solids other than fat" are below 8.5 per cent.

NOTES ON CLASSES.

Class 1. Pedigree Dairy Shorthorn Cow over 5 years old.—Entries 25: Present 21. This class showed great improvement in every respect over last year. No fewer than 14 out of 21 cows present gained points above the Society's standard, whereas only 7 out of 24 reached this standard at the last two Shows. The first

prize and the Desborough Cup were won by Mr. E. A. Smith's "Catthorpe Seraphina" (No. 19), with 131.9 points, and she was closely followed by Messrs. Clivers and Sons' "Wild Queen 29th" (No. 11), with 130.5 points.

Class 2. Pedigree Dairy Shorthorn Cow over 3 and under 5 years old.—Entries 25: Present 20. This is the third year of this class and the number of competitors shows that it is now fully justified. Sixteen cows out of the 20 reached the standard points, compared with only 8 out of 16 in the preceding two years. The average number of points gained was 96.3, as against 79.7 last year. The first prize was won by Mr. D. Aldridge's "Merry Maid 5th" (No. 28), with 130.6 points. This cow was also reserve for the Desborough Cup and winner of the £10 Special Prize offered by the Shorthorn Society in conjunction with the Dairy Shorthorn Association on the Inspection and Milking Trials results.

Class 3. Pedigree Dairy Shorthorn Heifer.—Entries 32: Present 15. Of the 15 heifers present only 5 attained the standard points for the class. The first prize was gained by Mr. E. A. Smith's "Longhills Melody" (No. 78), with 81.0 points, and the second prize by Lt.-Col. W. M. Pryor's "Lady Barrington" (No. 73), with 73.9 points.

Class 4. Non-Pedigree Dairy Shorthorn Cow. Entries 18: Present 14. This class maintained the improvement noted last year; ten of the fourteen cows exceeded the class standard and the average points for the class reached the high figure of 117.5. The first prize was won by Sir W. Hicking's "Golden Sovereign" (No. 89), with 158.8 points—a score which has only been surpassed in 1912. This cow was also reserve for the Barham and Shirley Cups. The second prize was awarded to "Lady Nelson" (No. 92), the property of Messrs. J. F. Nelson & Co., with 135.6 points.

Class 5. Non-Pedigree Dairy Shorthorn Heifer. Entries 12: Present 6. The entries here were much less numerous than in the other Shorthorn classes and there were no competitors of outstanding merit. Five out of the six heifers present, however, exceeded the class standard of 73 points; the average for the class was 73.5 points. The first prize winner was Mr. W. Wilson's "Lady Mary" (No. 112), with 87.5 points, closely followed by Mr. J. F. Shirley's "Primrose Maid" (No. 111), with 84.6 points.

Class 6. Lincolnshire Red Shorthorn Cow.—Entries 13: Present 8. This class showed a great improvement on the preceding years, in fact of the eight cows exhibited the average score reached 105.3 points—a record for this class. It was, however, very uneven, four out of the eight failing to attain the class standard of 100 points. Last year the low percentage of fat in the morning's milk was commented on and three cows this year lost points on this account. The first prize was gained by Messrs. John Evens & Sons' "Burton Fillingham" (No. 118), with a record score for a Lincoln red cow

of 157.1 points; the previous best was made in 1909. This cow was also reserve for the Spencer Cup. The second prize was won by "Burton Suttie 2nd" (No. 120), from the same noted herd, with a total of 139.2 points.

Class 7. Lincolnshire Red Shorthorn Heifer.—Entries 6: Present 4. Here the entry was small, but the quality excellent. All four heifers far exceeded the class standard— the average being 88.1 (a new record), with a standard of 66 points. The average milk yield was 40.1 lb., with an average fat percentage of 4.14 per cent. The first prize winner was shown by Mr. S. Reading and held her place with a score of 96.8 points.

Class 8. Jersey Cow. Entries 32: Present 19. This class gave disappointing results, only three out of the nineteen cows attaining the class standard of 95 points. The class average was only 76.3 points, and the records of these trials show that this is the lowest average since 1906. Jersey breeders should note that the average points in this class for the four Shows, held since 1915, is only 79.6 points, whereas the average of the six Shows, 1909-1914, was 90.9 points. The first prize was won by Mr. R. Bruce Ward's "Marseillaise" (No. 160), with 100.4 points.

Class 11. Guernsey Cow over 5 years old.—Entries 13: Present 8. The exhibits in this class were most creditable, only two out of the eight cows failing to reach the class standard of 85 points. The average for the eight was 92.8 points the highest average on record—but in this connection it must be remembered that in 1921 a class was provided for cows between three and five years, hence the average for the aged cows might be expected to show an improvement. The first prize and the Stagenhoe Cup was won by Mrs. Jervoise's "Lady's Maid 2nd of Ville au Roi" (No. 208), with 124.1 points. The 2nd prize winner was Mrs. R. C. Bainbridge's "Godolphin Pansy" (No. 204), with 110.5 points.

Class 12. Guernsey Cow over 3 and under 5 years.—Entries 10: Present 8. As this was the first year of this class high merit could scarcely be expected and four of the eight cows failed to reach the class standard of 71 points. The first prize was won by Mr. W. F. Trumper's "Damaris of Bigard 2nd" (No. 224), with 84.2 points.

Class 13. Guernsey Heifer. Entries 10: Present 7. The entries in this class continue to improve and it is most creditable and promising that all seven heifers forward should attain the class standard (56), the average being 67.1 points. The first prize winner was Mr. J. B. Body's "Lynchemere Rosy" (No. 230), with 83.7 points (less than 1 point below the winner in Class 12) followed at a considerable distance by Messrs. W. Holly & Sons "Tolworth Lassie" (No. 234), with 69.1 points.

Class 14. Red Poll Cow over 5 years.—Entries 12: Present 10. This class must be described as disappointing. Only two out of the ten cows attained the class standard (100) and the average fell to the low figure of 83.0 points; further, four out of the ten lost

points because of a low percentage of solids other than fat. The first prize was gained by Sir A. E. Bowen's "Sudbourne Adela" (No. 237) with 117.3 points, and the second prize by Mr. M. C. Pilkington's "Harefield Ruth" (No. 242), with 106.3 points. In view of the presence of a class for young cows it is all the more surprising that better figures were not obtained here.

Class 15. Red Poll Cows over 3 and under 5 years. Entries 13: Present 9. The excellence of this class is most encouraging; in milk yield, butter fat and average points it attained a higher standard than Class 14. Six out of the nine cows exceeded the class standard of 83 points and the average for the nine was 95.1. The first prize was awarded to Lt.-Col. W. Elwes "Kirtion Fryer" (No. 250) with 131.6 points, closely followed by Mr. F. Leach's "Meddler Mayflower" (No. 256), with 125.8 points both excellent scores for young cows.

Class 16. Red Poll Heifer.—Entries 14. Present 8. Five out of the eight heifers failed to reach the class standard (66) but, nevertheless, the class average was 69.5 points. The first prize was won by Major J. A. Morrison's "Spalding Pearl" (No. 263) with 81.2 points, and the second prize by Mr. D. Trembath's "Tendring Vera 18th" (No. 270), with 80.3 points. The latter heifer also won the Special Prize of £5 awarded by the Red Poll Cattle Society on the Inspection and Milking Trials results.

Class 17. Devon Cow.—Entries 9: Present 8. Good classes of this breed were exhibited in 1919 and 1920 and the standard was well maintained in 1921. In a good class, seven out of eight exceeded the class standard (90) and the average for the eight was 107.8 points. The first prize was won by Mr. W. G. Busk's "Stretton Tottie 5th" (No. 280) with the record score of 132.5 points. Mr. A. T. Loram's "Melon" was second with 126.8 points.

Class 18. South Devon Cow.—Entries 6: Present 5. After missing two shows, representatives of this breed made a welcome and fairly creditable reappearance. Three out of the five entries failed to reach the class standard of 100 points, and the class average was 104.4. Mr. W. Hunt's "Milkmaid 4th" (No. 286) gained first prize with the excellent score of 143.6 points.

Class 19. Ayrshire Cows.—Entries 4: Present 2. The reappearance of the Scottish Dairy Breed was most welcome, and though only half the entries put in an appearance, these were a distinct credit to the breed. The class standard is 90 points and both cows were well above it, the first prize winner, Mr. R. Dickie's "Jean" (No. 289) having 116.8 points. The milk yields and percentage of fat compared most favourably with the two Devon breeds and the Red Polls, and it is to be hoped the Scottish breeders will send a larger entry of equally representative animals in the future.

Class 20. Kerry Cow.—Entries 21: Present 16. This class contained a number of excellent animals, but on the whole lacked uniformity; only five cows out of sixteen attaining the class

standard (80); the class average was 76.5 points. The first prize was won by Mr. J. W. Towler's "Wadlands Buttermaker" (No. 305), with 107.9 points; a record score for a Kerry cow and also gaining the Silver Challenge Cup offered by the English Kerry and Dexter Cattle Society. "Flora of Carton" (No. 307) from the same herd obtained 2nd prize with 101.6 points.

Class 21. Kerry Heifer.—Entries 10: Present 6. Only two animals attained the class standard (53) and the class average fell to 49.3 points. The winner was Mr. Towler's "Rosebud of Carton" (No. 322), with 63.2 points.

Class 22. Dexter Cow.—Entries 7: Present 5. Some improvement has to be noted in this class, as two cows exceeded the class standard (75), whereas none had done so in 1919 or 1920. The class average, however, of 57.8 in 1921, and of 53.3 for the last four Shows indicates clearly that the class standard of 75 points is much too high. The first prize was won by Mr. A. G. King's "La Mancha Madeline" (No. 326) with 89.0 points, and the second prize and the Nutt Challenge Cup by Lady Kathleen Hare's "Gort Peach 9th" (No. 324), with 76.4 points.

Class 24. British Friesian Cow over 5 years. Entries 23: Present 10. The proportion of absentees in this class was surprising, and when compared with an exhibit of 27 in 1920, also disappointing. The quality of those present was, however, superb. Eight out of the ten cows exceeded the class standard (110) and this in spite of the fact that four cows lost points on the percentage of solids-other-than-fat in the milk. All cows gave milk containing over 3 per cent. of fat—a welcome improvement over last year when 11 out of 27 were below 3 per cent. in the morning's milk—but onlookers will in the future expect a similar result with a larger proportion of the entries actually competing. The average points obtained by this class was 133.6 (a record for the Show and surpassing the Red Poll record of 127.6 made in 1914). The first prize and the Barham, Shirley and Spencer Cups were won by Messrs. W. & R. Wallace's "Bladon Early" (No. 349) with the record score of 173.8 points. Second prize was awarded to Mr. James Russell's "Felhampton Susan" (No. 348), with 156.8 points. Messrs. A. & J. Brown's "Hedges Friesland Queen" accomplished the notable feat of averaging 82.3 lb. milk over the two days of the Trials, but 20 points were lost on the solids-other-than-fat, reducing her points to 154.4.

Class 25. British Friesian Cow over 3 and under 5 years.—Entries 9: Present 4. Although this class made its first appearance this year the number present was disappointing. All the cows exceeded the class standard (91) and the average reached the creditable figure of 114.9 points. The first prize was won by Mr. G. Holt Thomas's "Beccles Silver Queen" (No. 361) with 120.6 points and the second prize by Capt. R. G. Buxton's "Petygards Masseuse" (No. 357), with 117.2 points.

Class 26. British Friesian Heifer.—Entries 17: Present 7. Six out of the seven heifers exceeded the class standard (73), although three lost points on deficiency of solids-other-than-fat; the class average was 78.8 points. The first prize was won by Messrs. F. & T. Neame's "Macknade Endaw" (No. 376), with 89.5 points, and the second prize by Mrs. A. Burnham's "Attimore Mercia" (No. 367), with 81.9 points.

CHALLENGE CUPS AND TROPHIES.

One of the most interesting features of the Dairy Show is the competition for the Challenge Cups and Trophies open to all cows competing in the Milking Trials. The Challenge Cups which may be won in open competition are:—

(1) The "Barham" Challenge Cup (value £50), awarded to the owner of the cow gaining the greatest number of points in the Milking Trials.

(2) The "Spencer" Challenge Cup (value 50 guineas), awarded to the owner of the best Dairy Cow in the Show gaining the greatest number of points by Inspection, Milking Trials and Butter Test.

(3) The "Shirley" Challenge Cup (value 50 guineas), awarded to the owner of the cow giving the greatest weight of milk in the Milking Trials, such milk to contain not less than 3 per cent. fat and 8.5 per cent. non-fatty solids.

At the 1921 Show all the above were won by Messrs. W. & R. Wallace's British Friesian Cow "Bladen Early" (No. 349). Sir W. Hicking's non-pedigree Dairy Shorthorn "Golden Sovereign" (No. 89) was Reserve for the Barham and Shirley Cups and Mr. John Evens's Lincoln Red cow "Burton Fillingham" (No. 118) was Reserve for the Spencer Cup.

Through the generosity of Lord Bledisloe a new trophy was available for competition in 1921 on an entirely new basis. This trophy, which will be known in future years as the Bledisloe Bowl, is to be awarded to the Breed Society adjudged to have the best exhibit of good all-round dairy cows. The cows constituting the Breed "team" to be the first six cows in the Milking Trials, provided that such animals have been passed by the Inspection Judge as typical specimens of the breed.

Teams representing the Pedigree Dairy Shorthorns, Non-pedigree Shorthorns, Lincoln Reds, Red Polls, British Friesians, Devon, Jersey, Guernsey, and Kerry were available for competition and were paraded for further inspection judging. In arriving at a decision the Judge was instructed to take into consideration the general usefulness of the animals from a dairy point of view along with the results of the milking trials. The winners proved to be the British Friesian team and the British Friesian Cattle Society, therefore, hold the Bledisloe Bowl for 1921-22.

The following statement gives the number of Milking Trial points gained by each member of each team and the average for the respective teams.

BLEDISLOE BOWL.—Milking Trial Points of the Competing Teams.

Pedigree Shorthorns.			Non-Pedigree Shorthorns.			Lincoln Red Shorthorns.			Jerseys.			Guernseys.		
Catalogue No.	M.T. Points.	Catalogue No.	M.T. Points.	Catalogue No.	M.T. Points.	Catalogue No.	M.T. Points.	Catalogue No.	M.T. Points.	Catalogue No.	M.T. Points.	Catalogue No.	M.T. Points.	Catalogue No.
19	131.9	89	153.8	118	157.2	160	100.4	208	124.1					
28	130.6	92	135.6	120	139.2	148	97.0	204	110.5					
11	130.5	83	134.5	123	107.8	154	95.8	211	93.8					
6	129.4	99	132.2	122	104.6	143	86.7	205	92.6					
25	127.9	88	129.1	115	90.1	136	85.5	207	89.8					
7	117.5	93	125.9	125	84.7	162A	82.3	213	85.4					
	128.0		136.0		113.9		91.3		99.4					

Red Polls.			Devons.			Kerries.			British Friesians.		
Catalogue No.	M.T. Points.	Catalogue No.	M.T. Points.	Catalogue No.	M.T. Points.	Catalogue No.	M.T. Points.	Catalogue No.	M.T. Points.	Catalogue No.	M.T. Points.
250	131.6	280	132.5	305	107.9	349	173.8				
256	125.8	277	126.8	307	101.6	348	156.8				
237	117.3	275	110.1	295	99.2	335	154.4				
254	108.5	274	105.0	309	97.6	334	141.9				
242	106.3	278	104.6	312	93.0	337	137.8				
244	98.8	276	104.2	304	75.6	352	135.2				
	114.7		113.9		95.5		150.0				

The conditions under which this handsome trophy will be competed for in 1922 and future years are not yet decided and the experience of the 1921 competition will be utilised by the Council in so altering the conditions that the aim of the generous donor may be most fairly and fully realised. In view of the great variation in the size of the different breeds it would appear desirable that the live weight of the different teams should be taken into consideration.

COMPARISON OF BREEDS.

In the report of the 1920 Show, Dr. G. S. Robertson made an effort to collect into a single table the material necessary to guide one in forming some opinion as to the merits of the representatives of the different breeds exhibited. The writer has followed on the same lines and Table I (page 81) is the result. A new column has been added giving the number of animals entered in each class, and the column for the percentage of animals yielding milk below the 3 per cent. fat includes both morning and evening milkings - not morning only as in 1920. A study of the different columns in the table will provide much food for thought, but it must always be remembered that the results are those of one year only and the past record of the different breed classes makes it clear that there is a considerable variation in excellence from year to year. The question of milk yield in relation to live weight can now be given careful study, and while in this connection the results of one year may well be misleading, the Ayrshires and British Friesians give a most creditable return. When live weights have been collected for three or more years interesting information should be obtained from an examination of the data.

Table II has been enlarged to give details for the last three years of the number of cows tested, the average points gained, the number and percentage of animals exceeding the Society's standard points for each class and the average live weight of each class. A study of this table and also Table III almost inevitably raises the question as to the fairness of the Society's class standard for Jerseys and Dexters; there would appear to be good reasons for lowering the standard for both these breeds.* The proportion of animals attaining their class standards shows a welcome advance since 1919.

TABLE II.—SHOWING NUMBER OF COWS TESTED, AVERAGE POINTS GAINED AND THE NUMBER OF COWS COMING UP TO THE SOCIETY'S STANDARD—1919 TO 1921.

Class.	Description.	Points Gained	No. of Cows Tested.			Average Points Gained.			Number and Percentage of Cows above Standard.						Average Live Weight of Class.	
			1919 1920 1921			1919 1920 1921			1919			1920			1920	
									%			%			cwt. lbs.	
1	Pedigree Dairy Shorthorns ...	100	15	9	21	95.2	97.4	103.9	4	26.6	3	33.3	14	66.6	12	1
2	Ditto (over 3 and under 5 yrs.)	83	5	11	20	75.4	79.7	96.3	2	40.0	6	54.5	16	80.0	11	0
3	Ditto Heifers ...	66	5	9	15	59.6	60.9	61.6	1	20.0	3	33.3	5	33.3	10	0
4	Non-Pedigree Shorthorns ...	110	11	11	14	95.0	111.8	117.5	1	36.3	6	54.5	10	71.4	12	1
5	Ditto Heifers ...	73	6	7	6	89.2	76.9	73.5	3	50.0	5	71.4	5	83.3	9	3
6	Lancashire Red Shorthorns...	100	6	5	8	98.4	85.6	105.3	3	50.0	1	20.0	4	50.0	12	0
7	Ditto Heifers ...	66	6	6	4	68.3	86.0	88.1	4	66.6	5	83.3	4	100.0	9	2
8	Jerseys ...	95	24	17	19	80.3	85.5	76.3	4	16.6	4	23.5	3	15.7	7	2
11	Guernseys ...	85	11	12	8	84.8	84.2	92.8	5	45.4	5	41.7	6	75.0	9	0
12	Ditto (over 3 and under 5 yrs.)	71	—	—	8	—	—	68.4	—	—	—	—	4	50.0	7	3
13	Ditto Heifers ...	56	10	8	7	54.6	63.9	67.1	7	70.0	6	75.0	7	100.0	11	1
14	Red Polls ...	100	18	10	10	88.8	91.8	83.0	8	44.4	3	30.0	2	20.0	11	0
15	Ditto (over 3 and under 5 yrs.)	83	—	8	9	—	79.9	95.1	—	—	3	37.5	6	66.6	9	3
16	Ditto Heifers ...	66	5	11	8	78.0	72.1	69.5	4	80.0	7	63.6	5	62.5	9	0
17	Devons ...	90	5	4	8	85.6	108.5	107.8	2	40.0	3	75.0	7	87.5	12	1
18	South Devons ...	100	—	—	5	—	—	104.4	—	—	—	—	2	40.0	14	2
19	Ayrshires ...	90	—	—	2	—	—	106.7	—	—	—	—	2	100.0	9	1
20	Kerries ...	80	5	11	16	69.6	72.1	76.5	2	40.0	4	36.3	5	31.2	7	3
21	Ditto Heifers ...	53	—	3	6	—	54.0	49.3	—	—	2	66.6	2	33.3	7	0
22	Dexters ...	75	8	5	5	53.6	40.7	37.8	0	Nil	0	Nil	2	40.0	5	3
23	Ditto Heifers ...	50	—	1	—	—	—	—	—	—	0	Nil	—	—	4	2
24	British Friesians ...	110	4	27	10	83.1	98.2	133.6	1	25.0	10	37.0	8	80.0	11	3
25	Ditto (over 3 and under 5 yrs.)	91	—	—	4	—	—	114.9	—	—	—	—	4	100.0	12	1
26	Ditto Heifers ...	73	1	8	7	70.7	67.0	78.8	0	Nil	3	37.5	6	85.7	10	3
27	Welsh Black ...	90	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			145	183	220	—	—	—	54	37.2	79	43.1	129	58.6	—	—

TABLE III.—AVERAGE POINTS GAINED IN THE MILKING TRIALS EACH YEAR SINCE 1908.

Year.	Polish Shorthorn cows.	Polish Shorthorn cows, 3 to 5 years.	Shorthorn Hollers.	Non-Polish Shorthorn cows.	Non-Polish Hollers.	Shorthorn Hollers.	Red Shorthorn cows.	Red Shorthorn Hollers.	Jersey cows.	(Hornsey cows.)	(Hornsey Hollers.)	Red Poll cows.	Red Poll Hollers.	Devon cows.	South Devon cows.	Ayrshire cows.	Kerry cows.	Kerry Hollers.	Devon cows.	Devon Hollers.	British Friesian cows.	British Friesian Hollers.
1909	97.5	105.4	—	105.4	101.4	—	—	—	88.6	73.3	—	86.9	—	—	93.7	74.6	70.2	—	—	—	—	—
1910	109.5	109.4	—	109.4	99.4	—	—	—	90.5	77.9	—	95.5	—	—	107.2	80.1	—	—	—	—	—	—
1911	98.0	112.2	76.5	103.5	103.5	65.9	65.9	88.8	91.9	88.8	80.2	63.7	—	—	104.1	54.3	67.0	—	—	—	—	—
1912	98.0	124.4	79.4	95.5	95.5	67.8	67.8	94.5	94.5	94.5	96.3	75.9	—	—	103.9	79.6	93.3	—	—	—	—	—
1913	95.2	117.1	75.2	95.7	95.7	69.0	69.0	77.3	90.4	77.3	—	88.8	—	—	108.9	107.6	68.3	—	—	—	—	—
1914	106.5	106.9	73.6	96.3	96.3	67.7	67.7	89.8	85.5	85.5	—	127.6	65.5	—	108.5	—	—	—	—	—	—	—
1915	103.5	118.5	75.5	94.9	94.9	57.9	57.9	76.5	82.6	82.6	—	89.0	96.0	76.0	—	—	—	—	—	—	—	—
1916	95.2	99.6	89.2	88.4	88.4	68.3	68.3	80.3	84.8	84.8	54.6	88.8	78.0	85.6	—	—	69.6	61.3	—	—	—	—
1917	97.4	101.8	76.9	95.6	95.6	86.0	86.0	85.5	84.2	84.2	63.9	91.8	72.1	108.5	—	—	72.1	54.0	44.7	—	—	—
1918	103.9	117.5	73.5	105.3	105.3	88.1	88.1	76.3	92.8	92.8	67.1	83.0	69.5	107.8	104.4	106.7	76.5	49.3	57.8	—	—	—
1919	99.5	112.1	77.5	97.6	97.6	71.3	71.3	86.4	81.8	81.8	61.9	93.4	69.9	100.6	101.0	84.6	75.7	51.6	53.3	—	—	—
Aver. Points p.a.	99.5	109.4	77.5	97.6	97.6	71.3	71.3	86.4	81.8	81.8	61.9	93.4	69.9	100.6	101.0	84.6	75.7	51.6	53.3	—	—	—
B.D.F.A. Class	100	83	66	110	73	100	66	95	85	85	56	100	66	90	100	90	80	33	75	50	110	73
Standard	100	83	66	110	73	100	66	95	85	85	56	100	66	90	100	90	80	33	75	50	110	73

TABLE IV.—SHOWING THE HIGHEST POINTS GAINED EACH YEAR SINCE 1908.

[illegible]

TABLE V.—QUANTITY AND QUALITY OF MILK, 1910-1921.

Breed.	Year.	No. of Animals	Average Weight of Milk.		Total Weight of Milk.	Percentage Composition of Milk.						Total Solids.
			Fat.			Solids, not Fat		Even.		Morn.		
			Morn.	Even.		Morn.	Even.	Morn.	Even.	Morn.	Even.	
Shorthorns, Pedigree	1910	11	lbs. 26.0	lbs. 24.0	50.0	3.77	4.25	9.08	9.03	12.85	13.28	
	1911	13	23.8	21.5	45.3	3.23	3.75	9.21	8.95	12.44	12.70	
	1912	13	24.5	21.8	46.3	3.66	4.01	9.16	9.13	12.82	12.14	
	1913	24	24.9	22.9	47.8	3.39	3.67	9.06	8.94	12.45	12.61	
	1914	14	26.4	23.8	50.2	3.60	4.09	9.18	9.08	12.78	13.17	
Do. do. 5 years and over	1915	12	28.2	25.4	53.6	3.17	3.54	9.32	9.16	12.49	12.70	
	1919	15	24.1	21.8	45.9	3.61	4.09	9.15	8.98	12.76	13.07	
	1920	9	26.1	22.2	48.3	3.58	4.06	9.00	9.08	12.58	13.14	
	1921	21	27.3	22.5	49.8	3.63	4.08	9.00	8.90	12.63	12.98	
	1919	5	20.1	18.0	38.1	3.41	3.80	9.23	9.08	12.64	12.88	
Do. do. over 3 & under 5 years	1920	11	21.2	18.4	39.6	3.51	3.97	9.80	9.20	12.81	13.17	
	1921	20	24.7	21.2	45.9	3.68	4.41	9.12	9.05	12.80	13.46	
	1910	12	16.6	15.2	31.8	3.22	3.74	9.42	9.29	12.64	13.03	
Shorthorns, Pedigree (Heifers)	1911	10	16.8	14.9	31.7	3.24	3.41	9.21	9.21	12.45	12.61	
	1912	3	12.9	11.3	24.2	3.47	3.13	9.44	9.34	12.81	12.47	
	1913	20	14.9	13.9	28.8	3.71	4.16	9.26	9.05	12.97	13.21	
	1914	15	15.8	14.1	29.9	3.26	3.89	9.19	9.08	12.45	12.97	
	1915	4	17.6	15.2	32.8	3.76	3.63	9.45	9.52	13.21	13.15	
Shorthorns, Non-Pedigree Cows	1919	5	14.7	12.5	27.2	3.25	3.99	9.34	9.22	12.59	13.21	
	1920	9	14.8	13.7	28.5	3.58	4.08	9.26	9.12	12.84	13.80	
	1921	15	15.3	13.5	28.8	3.76	4.06	9.15	9.24	12.91	13.30	
	1910	16	27.0	24.7	51.7	3.60	4.08	8.97	8.94	12.57	13.02	
	1911	18	29.0	26.2	55.2	3.43	4.36	9.26	8.95	12.69	13.37	
Shorthorns, Non-Pedigree Cows	1912	22	31.4	28.3	59.7	3.69	4.29	9.11	8.94	12.80	13.23	
	1913	10	29.8	28.6	58.4	3.72	3.92	8.97	8.77	12.69	12.69	
	1914	15	27.9	25.1	53.0	3.52	4.10	8.97	8.86	12.49	12.96	
	1915	13	30.4	27.4	57.8	3.80	3.69	9.16	9.16	12.96	12.85	
	1919	11	23.4	20.4	43.8	4.20	4.46	8.98	9.19	13.18	13.67	
1920	11	27.5	23.1	50.6	4.02	4.74	9.28	9.13	13.30	13.87		
1921	14	28.6	24.4	53.0	4.09	4.60	9.19	9.08	13.25	13.68		

TABLE V.—QUANTITY AND QUALITY OF MILK, 1910-1921—Continued.

Breed.	Year.	No. of Animals	Average Weight of Milk.		Total Weight of Milk.	Percentage Composition of Milk.							
			Morn.	Even.		Fat.		Solids, not Fat.		Total Solids.			
						Morn.	Even.	Morn.	Even.	Morn.	Even.		
Shorthorns, Non-Pedigree (Heifers)	1910	11	lbs. 16.6	16.0	lbs. 32.6	3.31	3.72	9.33	9.24	12.64	12.96		
	1911	7	19.3	17.7	37.0	3.51	3.72	9.51	9.25	13.03	12.99		
	1912	2	19.7	18.6	38.3	3.57	4.31	9.41	9.39	12.98	13.70		
	1913	11	19.0	17.4	36.4	3.76	4.16	8.99	8.87	12.75	13.03		
	1914	10	19.0	16.7	35.7	3.41	3.66	9.28	9.17	12.99	12.83		
	1915	2	20.3	18.4	38.7	3.03	3.81	9.41	9.31	12.44	13.12		
	1919	6	20.1	16.3	36.4	3.98	3.55	9.25	9.16	13.23	12.71		
	1920	7	19.2	16.2	35.4	3.99	4.55	9.28	9.01	13.27	13.56		
	1921	6	19.0	16.9	35.9	4.03	4.03	9.61	9.59	13.64	13.62		
	1910	8	24.1	21.5	45.6	3.60	4.00	9.03	8.96	12.63	12.91		
	1911	7	26.4	23.7	50.1	3.19	4.66	9.05	8.85	12.24	13.56		
	1912	8	24.0	22.2	46.2	3.41	3.96	9.24	9.02	12.65	12.98		
Lincolnshire Red Shorthorns	1913	7	26.2	21.4	47.6	3.38	3.48	8.73	8.74	12.31	12.22		
	1914	5	26.2	22.6	48.8	3.22	3.48	8.99	9.15	12.21	12.63		
	1915	6	29.3	24.8	54.1	3.00	2.92	9.11	9.18	12.11	12.10		
	1919	6	25.6	22.3	47.9	3.27	3.96	9.21	8.96	12.48	12.92		
	1920	5	23.6	22.0	45.6	2.58	4.38	9.12	8.82	11.70	13.20		
	1921	8	28.3	23.6	51.9	3.26	3.81	9.10	9.05	12.36	12.86		
	1910	—	—	—	—	—	—	—	—	—	—		
	1911	6	16.8	15.5	32.3	3.28	3.70	9.32	9.33	12.60	13.03		
	1912	6	16.6	15.6	32.2	3.67	3.75	9.18	9.03	12.85	12.78		
	1913	5	18.5	16.8	35.3	3.51	3.74	9.09	9.00	12.60	12.74		
	1914	4	18.5	16.3	34.8	3.14	3.69	9.28	9.16	12.42	12.85		
	1915	4	18.8	16.7	35.5	2.68	3.12	9.32	9.36	12.00	12.48		
1919	6	16.8	14.4	31.2	3.89	4.06	9.19	9.19	13.08	13.25			
1920	6	22.8	18.9	41.7	3.23	4.15	9.19	9.04	12.42	13.19			
1921	4	22.1	18.0	40.1	3.98	4.36	9.10	9.34	13.03	13.70			
Lincolnshire Red Heifers ..													

TABLE V.—QUANTITY AND QUALITY OF MILK, 1910-1921—Continued.

Breed.	Year.	No. of Animals	Average Weight of Milk.		Total Weight of Milk.	Percentage Composition of Milk.								
			Milk.			Fat.		Solids, not Fat.		Total Solids.				
			Morn.	Even.		Morn.	Even.	M. rn.	Even.	Morn.	Even.			
Red Poll Heifers	1910	7	lbs. 17.2	15.6	32.8	3.56	4.12	9.50	9.39	13.06	13.51	13.85		
	1911	5	15.5	14.4	29.9	3.66	4.30	9.30	9.32	12.96	13.63	13.67		
	1912	4	17.8	16.3	34.1	3.95	4.00	9.49	9.47	13.45	13.47	13.87		
	1913	9	16.3	14.7	31.0	3.80	4.02	9.34	9.05	13.14	13.07	12.67		
	1914	7	17.3	15.4	32.7	3.36	3.43	9.26	9.24	12.62	12.67	13.06		
	1915	7	17.8	16.4	34.2	3.37	3.72	9.62	9.36	12.99	13.09	13.06		
	1919	5	19.2	18.3	37.5	3.09	3.95	9.28	9.11	12.37	13.06	13.71		
	1920	11	17.6	15.2	32.8	3.93	4.45	9.37	9.26	13.30	13.32	12.15		
	1921	8	17.3	14.7	32.0	3.91	4.34	9.24	8.98	13.15	13.32	11.97		
	1910	2	18.8	19.3	38.1	3.31	3.68	8.64	8.47	11.95	12.15	11.97		
Ayrshire Cows	1911	2	17.4	17.4	34.8	2.72	3.38	8.71	8.59	10.93	11.97	12.85		
	1912	7	21.5	19.2	40.7	3.48	3.75	9.28	9.10	12.76	12.85	13.61		
	1913	4	25.3	22.5	47.8	4.15	4.34	9.57	9.27	13.72	13.61	—		
	1914-15	—	—	—	—	—	—	—	—	—	—	—		
	1919-20	—	—	—	—	—	—	—	—	—	—	—		
	1921	2	25.9	21.7	47.6	4.73	5.13	8.81	8.72	13.54	13.85	13.67		
	1919	5	20.5	16.7	37.2	4.28	4.39	9.42	9.28	13.70	13.67	13.58		
	1920	4	25.6	20.5	46.1	4.94	4.60	9.04	8.98	13.98	13.89	14.12		
	1921	8	24.1	20.7	44.8	4.82	5.07	9.07	9.05	13.89	14.12	12.92		
	1910	7	26.2	24.9	51.1	3.44	3.88	9.25	9.04	12.69	12.92	12.72		
Devons	1911	3	26.8	23.0	49.8	3.21	3.62	9.23	9.09	12.44	12.72	13.32		
	1912	6	25.1	22.9	48.0	3.86	4.14	9.36	9.18	13.22	13.32	12.86		
	1913	2	25.1	21.8	46.9	4.09	3.80	9.19	9.06	13.28	12.86	13.06		
	1914	6	26.5	25.4	51.9	3.25	3.87	9.31	9.19	12.56	13.06	12.66		
	1915	3	22.2	18.4	40.6	3.17	3.60	9.29	9.06	12.46	12.66	—		
	1919-20	—	—	—	—	—	—	—	—	—	—	—		
	1921	5	22.6	20.1	42.7	4.75	5.28	9.10	9.05	13.85	14.33	—		
	South Devons	1910	7	26.8	23.0	49.8	3.21	3.62	9.23	9.09	12.44	12.72	13.32	
		1911	3	26.8	23.0	49.8	3.21	3.62	9.23	9.09	12.44	12.72	13.32	
		1912	6	25.1	22.9	48.0	3.86	4.14	9.36	9.18	13.22	13.32	12.86	
1913		2	25.1	21.8	46.9	4.09	3.80	9.19	9.06	13.28	12.86	13.06		
1914		6	26.5	25.4	51.9	3.25	3.87	9.31	9.19	12.56	13.06	12.66		
1915		3	22.2	18.4	40.6	3.17	3.60	9.29	9.06	12.46	12.66	—		
1919-20		—	—	—	—	—	—	—	—	—	—	—		
1921		5	22.6	20.1	42.7	4.75	5.28	9.10	9.05	13.85	14.33	—		

TABLE V.—QUANTITY AND QUALITY OF MILK, 1910-1921—Continued.

Breed.	Year.	No. of Animals	Average Weight of Milk.		Total Weight of Milk.	Percentage Composition of Milk.					
			Milk.			Fat.		Solids, not Fat.		Total Solids.	
			Morn.	Even.		Morn.	Even.	Morn.	Even.	Morn.	Even.
Kerry Cows ..	1910	3	19.9	19.2	39.1	4.04	4.81	9.06	8.86	13.10	13.67
	1911	6	16.9	14.7	31.6	3.48	3.92	9.11	9.04	12.59	12.97
	1912	2	21.3	19.9	41.2	3.81	5.03	9.32	9.21	13.13	14.24
	1913	5	16.9	14.3	31.2	3.97	4.18	9.24	9.24	13.21	13.42
	1914	—	—	—	—	—	—	—	—	—	—
Kerry Heifers	1919	5	16.7	15.9	32.6	3.70	4.40	9.03	9.06	12.73	13.46
	1920	11	16.3	14.2	30.5	4.27	4.83	9.42	9.19	13.69	14.02
	1921	14	17.8	13.6	31.4	4.42	5.15	9.04	9.00	13.46	14.15
	1920	3	11.5	9.6	21.1	4.53	4.75	9.80	9.56	14.33	14.31
	1921	6	10.8	9.8	20.6	4.93	4.92	9.20	9.17	14.13	14.09
Dexters ..	1915	2	15.0	13.5	28.5	3.61	3.81	9.20	9.13	12.81	12.94
	1919	8	11.2	9.9	21.1	4.23	4.79	9.26	9.15	13.76	13.84
	1920	5	8.6	7.3	15.9	4.64	5.04	9.12	8.88	13.39	14.17
	1921	5	11.3	9.1	20.4	4.47	5.29	8.92	8.88	13.39	14.17
	1920	1	10.2	7.6	17.8	4.45	4.97	9.61	9.41	14.06	14.38
Dexter Heifers	1921	—	—	—	—	—	—	—	—	—	—
	1914	6	21.6	18.8	40.4	3.18	3.59	8.99	8.96	12.17	12.55
	1915	7	26.0	23.8	49.8	2.80	3.28	8.91	8.90	11.71	12.18
British Friesians ..	1919	4	25.3	22.0	47.3	3.16	3.31	8.79	8.83	11.95	12.14
	1920	27	28.7	25.1	53.8	3.21	3.77	8.74	8.59	11.95	12.36
	1921	10	34.2	27.4	61.6	4.36	4.23	8.76	8.58	13.12	12.81
British Friesian—5 years and over	1921	4	27.9	23.1	51.0	4.82	4.66	8.88	8.68	13.70	13.34
	1919	1	21.5	18.3	39.8	2.86	3.37	8.56	8.57	11.42	12.24
	1920	8	18.1	16.1	34.2	3.45	3.87	8.96	8.91	12.41	12.78
British Friesian Heifers ..	1921	7	20.9	17.5	38.4	3.97	3.43	8.73	8.56	12.70	12.49

TABLE VI.—NUMBER OF ANIMALS YIELDING MILK DEFICIENT IN FAT AND OTHER SOLIDS.

Description.	Less than 3 per cent. of Fat.										Less than 8.5 per cent. of other Solids.									
	1911	1912	1913	1914	1915	1919	1920	1921	1911	1912	1913	1914	1915	1919	1920	1921				
Cows.																				
Dairy Shorthorns—Pedigree ...	5	3	6	2	6	5	2	4	1	1	3	0	0	1	2	1				
Dairy Shorthorns—Non-Pedigree ...	6	5	3	4	4	2	2	1	3	2	3	2	0	1	0	0				
Lincoln Red Shorthorns ...	4	2	0	2	5	2	4	3	0	0	0	1	0	0	0	0				
Red Polls ...	2	3	2	0	0	5	1	0	0	0	1	0	0	2	0	4				
British Friesians ...	—	—	—	4	5	2	12	0	—	—	—	0	0	1	14	4				
Devons ...	—	—	—	—	—	0	0	—	—	—	—	—	—	0	0	0				
South Devons ...	1	0	0	2	1	No Entries	No Entries	0	0	0	0	0	0	No Entries	No Entries	0				
Ayrshires ...	1	2	0	0	No Entries	No Entries	0	1	1	0	0	0	0	0	3	0				
Jerseys ...	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0				
Guernseys ...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Kerry ...	0	0	0	No Entries	No Entries	1	1	0	1	0	0	No Entries	1	0	1	1				
Dexter ...	—	—	—	—	0	0	0	0	—	—	—	—	—	0	1	0				
COWS (OVER 3 AND UNDER 5 YEARS)																				
Dairy Shorthorns—Pedigree ...	—	—	—	—	—	2	3	5	—	—	—	—	—	0	1	1				
Dairy Shorthorns—Non-Pedigree ...	—	—	—	—	—	—	2	0	—	—	—	—	—	—	0	1				
Red Polls ...	—	—	—	—	—	—	—	0	—	—	—	—	—	—	—	1				
British Friesians ...	—	—	—	—	—	—	—	0	—	—	—	—	—	—	—	1				
Guernseys ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
HEIFERS.																				
Dairy Shorthorns—Pedigree ...	4	2	1	3	1	1	2	1	0	0	0	0	0	0	0	0				
Dairy Shorthorns—Non-Pedigree ...	2	1	1	2	1	1	0	2	0	0	2	0	0	0	0	0				
Lincoln Red Shorthorns ...	1	1	2	3	3	0	1	1	0	0	1	0	0	0	0	0				
Red Poll ...	1	0	0	1	3	1	1	1	0	0	0	0	0	0	2	3				
British Friesian ...	—	—	—	—	—	1	3	0	—	—	—	—	—	0	0	0				
Guernsey ...	—	—	—	—	—	0	0	0	—	—	—	—	—	—	0	0				
Kerry ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
Total ...	28	19	15	22	29	23	34	18	7	3	11	2	0	7	23	18				
Number of Animals Tested	100	94	125	105	85	145	183	220	100	94	125	105	85	145	183	220				

MILKING TRIALS, 1921.

CLASS I.—DAIRY SHORTHORN COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1916).

Number ...	...	...	...	1	3	4	5
Name ...	...	...	...	Lady of the Manor.	Silver Star.	Hadnock Mignon Daisy.	Lily Wild Eyes.
Born ...	...	...	...	Feb. 25, 1914.	May 20, 1914.	Sept. 5, 1914.	Aug. 3, 1912.
Number of Calves ...	...	...	...	—	3	3	—
Last Calved ...	...	...	...	Sept. 23.	Sept. 27.	Sept. 10.	Sept. 27.
Days since Calving ...	...	...	...	24	20	28	20
Live weight, in lbs. ...	...	...	...	1,419	1,103	1,234	1,318
Weight of Milk, 1st day ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	...	...	29.3 26.1	18.4 16.8	27.1 22.5	27.5 22.6
Total ...	...	...	...	29.6 24.2	24.4 18.1	26.6 22.5	27.5 21.8
Average ...	...	...	...	58.9 50.3	42.8 34.9	53.7 45.0	55.0 44.4
Percentage ...	...	...	...	29.4 25.1	21.4 17.4	26.8 22.5	27.5 22.2
Composition of ...	...	...	...	3.56 4.13	3.14 4.07	4.45 3.99	4.12 3.89
the Milk. ...	...	...	...	9.28 9.19	8.52 8.53	8.83 9.09	9.34 8.97
Actual weight of Fat, in lbs. ...	...	...	...	12.84 13.32	11.66 12.60	13.28 13.08	13.46 12.86
Calculation of Points multiply by 20 ...	...	...	...	1.05 1.03	.67 .71	1.20 .9	1.13 .86
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	21.00 20.6	13.40 14.2	24.00 18.0	22.6 17.2
Calculation of Points multiply by 4 ...	...	...	...	2.74 2.28	1.82 1.48	2.36 2.01	2.56 2.0
Points ...	...	...	...	10.96 9.12	7.28 5.92	9.44 8.16	10.24 8.0
For time since Calving ...	...	...	...	54.5	38.8	49.3	49.70
For weight of Milk (lbs.) ...	...	...	...	41.6	27.6	42.0	39.80
For weight of Fat (lbs. × 20) ...	...	...	...	20.08	13.2	17.6	18.24
For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	116.18	79.6	108.9	107.74
Total ...	...	...	...	—	—	—	—
Deductions ...	...	...	...	116.18	79.6	108.9	107.74
Points gained ...	...	...	...	—	—	—	—
Remarks and Awards ...	...	...	...	—	—	—	—

CLASS 1.—DAIRY SHORTHORN COWS (BORN ON OR PREVIOUS TO 1-1 AUGUST, 1916)—Continued.

Number ...	6	7	8	9
Name ...	Vain Lucy 2th.	Maudie Moore.	Red Rose.	Portia de Redel 2th.
Born ...	Feb. 20, 1913.	April 5, 1916.	Sept. 12, 1912.	Mar. 4, 1916.
Number of Calves ...	Oct. 2.	Oct. 1.	Sept. 12.	Sept. 13.
Last Calved ...	15	16	35	34
Days since Calving ...	1,620	1,425	1,389	1,290
Live weight, in lbs. ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day ...	30.7 24.4	29.5 24.4	37.4 31.4	27.1 22.5
Weight of Milk, 2nd day ...	30.8 25.6	30.1 24.6	35.0 31.1	29.5 24.9
Total ...	61.5 50.0	59.6 49.0	72.4 62.5	56.6 47.4
Average ...	30.7 25.0	29.8 24.5	36.2 31.2	28.3 23.7
Percentage of Fat ...	4.72 4.82	9.51 4.17	2.61 4.04	3.80 3.05
Composition of Solids other than Fat ...	9.46 9.16	9.45 9.31	8.68 8.40	9.16 8.82
the Milk. { Total Solids ...	14.18 13.98	12.96 13.78	11.32 12.44	13.02 12.50
Actual weight of Fat, in lbs. ...	1.45 1.20	1.05 1.09	.953 1.26	1.09 .87
Calculation of Points multiply by 20... {	29.0 24.0	21.0 21.8	19.10 25.2	21.8 17.4
Actual weight of Solids other than Fat, in lbs. {	2.90 2.29	2.82 2.28	3.14 2.62	2.60 2.1
Calculation of Points multiply by 4 ... {	11.6 9.16	11.28 9.12	12.56 10.48	10.40 8.4
Points { For time since Calving ...	55.7	54.3	67.40	52.0
For weight of Milk (lbs.) ...	53.0	42.8	44.30	39.2
For weight of Fat (lbs. × 20) ...	20.7	20.4	23.04	18.8
For weight of Solids other than Fat (lbs. × 4) ... {	129.4	117.5	134.74	110.0
Total ...	—	—	20.00	—
Deductions ...	129.4	117.5	114.74	110.0
Points gained... {	—	—	—	—
Remarks and Awards ...	3rd Prize.			

CLASS 1.—DAIRY SHORTHORN COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1916)—Continued.

Number ...	...	...	...	20	21	23	24
Name ...	...	...	...	Lady 32nd	Silverton Sweet Rush.	Primrose.	Red Rose 11th.
Born ...	...	...	...	Mar. 22, 1912.	Sept. 9, 1915.	April 16, 1914.	May 2, 1914.
Number of Calves ...	...	...	...	—	—	—	5
Last Calved ...	...	...	...	Sept. 18.	Sept. 16.	June 12.	Sept. 8.
Days since Calving ...	...	...	...	29	31	127	39
Live weight, in lbs. ...	...	...	...	1,220	1,348	1,382	1,445
Weight of Milk, 1st day	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	23-0 18-0	30-6 25-0	16-6 12-4	26-6 24-5
Total	...	...	...	24-6 21-9	30-1 23-3	17-2 14-2	27-0 24-5
Average ...	...	...	...	47-6 39-9	60-7 48-3	33-8 26-6	53-6 49-0
Percentage of Fat ...	...	...	...	23-8 19-9	30-3 24-1	16-9 13-3	26-8 24-5
Composition of Solids other than Fat	...	...	...	3-79 4-63	3-15 2-41	3-35 3-83	3-33 5-03
the Milk. { Total Solids	...	...	...	9-35 9-31	8-71 8-59	8-61 8-57	9-13 8-85
Actual weight of Fat, in lbs. ...	...	...	...	13-14 13-94	11-86 11-00	11-96 12-40	12-46 13-88
Calculation of Points multiply by 20...	...	...	...	90 .925	95 .58	57 .51	89 1-23
Actual weight of Solids other than Fat, in lbs.	...	...	...	18-0 18-50	19-0 11-6	11-4 10-2	17-8 24-6
Calculation of Points multiply by 4 ...	...	...	...	2-23 1-86	2-64 2-08	1-46 1-14	2-45 2-17
For time since Calving	...	...	...	8-92 7-44	10-56 8-32	5-84 4-56	9-8 8-68
For weight of Milk (lbs.)	...	...	...	—	—	8-7	—
For weight of Fat (lbs. × 20)	...	...	...	43-70	54-4	30-2	51-3
For weight of Solids other than Fat	...	...	...	36-50	30-6	21-6	42-4
(lbs. × 4) ...	...	...	...	16-36	18-9	10-4	18-48
Total ...	...	...	...	96-56	103-9	70-9	112-18
Deductions ...	...	...	...	—	10-0	—	—
Points gained...	...	...	...	96-56	93-9	70-9	112-18
Remarks and Awards ...	...	...	...	...	...	...	...

CLASS 1.—DAIRY SHORTHORN COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1916)—Continued.

Number ...	...	...	...	...	25
Name ...	...	...	...	...	Few, F. of Hetherop 5th
Born ...	...	...	...	...	May 16, 1916.
Number of Calves ...	...	...	...	...	2
Last Calved ...	...	...	...	...	Sept 26,
Days since Calving ...	...	...	...	...	21
Live weight, in lbs. ...	...	...	...	...	1,386
Weight of Milk, 1st day	...	...	...	...	Morn
Weight of Milk, 2nd day	...	...	...	...	Even
Total	...	...	...	...	33.7 27.4
Average	...	...	...	...	30.0 25.3
Percentage of Fat ...	...	...	...	...	64.3 52.7
Composition of Solids other than Fat the Milk.	...	...	...	...	32.1 26.3
Actual weight of Fat, in lbs. ...	...	...	...	...	3.55 4.95
Calculation of Points multiply by 20...	...	...	...	...	8.93 8.83
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	12.48 13.78
Calculation of Points multiply by 4 ...	...	...	...	...	1.14 1.3
For time since Calving	...	...	...	...	22.8 26.0
For weight of Milk (lbs.)	...	...	...	...	2.87 2.32
For weight of Fat (lbs. × 20)	...	...	...	...	11.48 9.28
For weight of Solids other than Fat (lbs. × 4)	...	...	...	...	—
Points	...	...	...	...	58.4
Total	...	...	...	...	48.8
Deductions	...	...	...	...	20.7
Points gained...	...	...	...	...	127.9
Remarks and Awards ...	...	...	...	...	127.9
Reserve.	...	...	...	...	—

CLASS 2.—DAIRY SHORTHORN COWS (BORN AFTER 1ST AUGUST, 1916, AND PREVIOUS TO 1ST AUGUST, 1918).

Number ...	...	...	...	26	27	28	29
Name ...	...	...	...	Lady Clara.	Thurham Ringlet 9th.	Merry Maid 5th.	Hadnock Heath.
Born ...	...	...	...	Sept. 30, 1917.	Dec. 28, 1917.	May 3, 1917.	Oct. 11, 1916.
Number of Calves ...	...	...	...	1	1	—	—
Last Calved ...	...	...	...	Sept. 21.	Sept. 14.	Oct. 3.	Sept. 6.
Days since Calving ...	...	...	...	26	33	14	41
Live weight, in lbs. ...	...	...	...	1,183	1,489	1,372	1,198
	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day ...	...	...	...	27.6 29.4	22.5 20.2	30.2 28.2	25.7 21.2
Weight of Milk, 2nd day ...	...	...	...	34.4 28.5	16.4 21.5	32.2 29.8	27.2 22.7
Total ...	...	...	...	62.0 57.9	38.9 41.7	62.4 58.0	52.9 43.9
Average ...	...	...	...	31.0 28.9	19.4 20.8	31.2 29.0	26.4 21.9
Percentage of Fat ...	...	...	...	2.00 3.13	2.85 4.56	3.28 4.79	3.85 4.43
Composition of Solids other than Fat ...	...	...	...	9.34 9.29	8.51 8.48	9.32 9.07	9.13 9.13
the Milk. { Total Solids ...	...	...	...	11.34 12.42	11.36 13.04	12.60 13.86	13.98 13.56
Actual weight of Fat, in lbs. ...	...	...	...	.62 .90	.55 .95	1.03 1.38	1.02 .97
Calculation of Points multiply by 20 ...	...	...	...	12.4 18.0	11.0 19.0	2.06 27.6	20.4 19.4
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	2.9 2.68	1.65 1.76	2.92 2.63	2.42 2.0
Calculation of Points multiply by 4 ...	...	...	...	11.6 10.72	6.6 7.04	11.68 10.52	9.68 8.0
{ For time since Calving ...	...	...	...	—	—	—	.10
{ For weight of Milk (lbs.) ...	...	...	...	59.90	40.20	60.2	48.30
{ For weight of Fat (lbs. × 20) ...	...	...	...	30.40	30.00	48.2	39.80
{ For weight of Solids other than Fat ...	...	...	...	22.32	13.64	22.2	17.68
Total ...	...	...	...	112.62	83.84	130.6	105.88
Deductions ...	...	...	...	10.00	20.00	—	—
Points gained ...	...	...	...	102.62	63.84	130.6	105.88
Remarks and Awards ...	...	...	...			1st Prize, Shorthorn Society's Prize.	Highly Commended.

CLASS 2.—DAIRY SHORTHORN COWS (BORN AFTER 1ST AUGUST, 1916, AND PREVIOUS TO 1ST AUGUST, 1918)—Continued.

Number ...	...	...	...	31	32	33	34
Name ...	...	...	...	Histon Elegance.	Lady Doreen.	Orange Honey.	Rickenscote Nelly Lee
Born ...	...	...	...	April 15, 1918.	Mar. 19, 1917.	Mar. 31, 1917.	Aug. 31, 1917.
Number of Calves ...	...	...	...	...	...	...	1
Last Calved ...	...	...	...	Sept. 19.	Sept. 17.	Oct. 2.	Sept. 30.
Days since Calving ...	...	...	...	28	30	15	17
Live weight, in lbs. ...	...	...	...	1,454	1,255	1,301	1,062
Weight of Milk, 1st day	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	17.5 14.0	28.7 27.3	16.7 13.3	15.6 14.0
Total	...	...	...	16.9 14.8	30.4 26.3	17.4 13.5	15.1 12.4
Average ...	...	...	...	34.4 28.8	59.1 53.6	34.1 26.8	30.7 26.4
Percentage { Fat ...	...	...	...	17.2 14.4	29.5 26.8	17.0 13.4	15.3 13.2
Composition { Solids other than Fat	...	...	...	3.84 4.42	2.36 3.89	8.99 6.81	3.49 4.98
the Milk. { Total Solids	...	...	...	9.26 9.24	7.74 8.59	9.01 9.05	9.35 8.78
Actual weight of Fat, in lbs. ...	...	...	...	13.10 13.66	11.10 12.48	18.00 15.86	12.84 13.76
Calculation of Points multiply by 20...	...	...	...	.66 .64	70 1.04	1.52 .91	555 .66
Actual weight of Solids other than Fat, in lbs.	...	...	...	13.2 12.8	14.0 20.8	30.4 18.2	10.7 13.2
Calculation of Points multiply by 4 ...	...	...	...	1.60 1.33	2.58 2.3	1.53 1.22	1.43 1.16
Points { For time since Calving	...	...	...	6.40 5.32	10.32 9.2	6.12 4.88	5.72 4.64
{ For weight of Milk (lbs.)	...	...	...	31.60	56.30	30.4	28.50
{ For weight of Fat (lbs. × 20)	...	...	...	26.00	34.80	48.6	23.90
{ For weight of Solids other than Fat	...	...	...	11.72	19.52	11.0	10.36
(lbs. × 4) ...	...	...	...	69.32	110.62	90.0	62.76
Total ...	...	...	...	69.32	100.62	90.0	62.76
Deductions	...	...	...	
Points gained...	...	...	...	
Remarks and Awards ...	...	...	...	

CLASS 2.—DAIRY SHORTHORN COWS (BORN AFTER 1ST AUGUST, 1916, AND PREVIOUS TO 1ST AUGUST, 1918) —Continued.

Number	...	...	...	...	35	36	39	40
Name	...	...	...	...	Thornly Duchess 5th	Histholm Rosebud.	Fairy Clara.	Betty 24th.
Born	...	...	...	...	Dec. 19, 1917.	Oct. 19, 1916.	Aug. 18, 1916.	Sept. 21, 1917.
Number of Calves	...	...	...	...	1	2	3	2
Last Calved	...	...	...	...	Sept. 27.	Sept. 25.	Sept. 8.	May 2.
Days since Calving	...	...	...	...	20	22	39	168
Live weight, in lbs.	...	...	...	...	1,202	1,536	1,252	1,204
					Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day	...	...	...	...	19-5 16-6	27-5 20-9	26-6 23-0	21-8 18-1
Weight of Milk, 2nd day	...	...	...	...	22-2 17-5	26-1 21-9	30-9 22-5	21-8 16-9
Total	...	...	...	...	41-7 34-1	53-6 42-8	57-5 45-5	43-6 35-0
Average	...	...	...	...	20-8 17-0	26-8 21-4	28-7 22-7	21-8 17-5
Percentage	...	...	...	...	3-17 3-15	4-41 5-04	2-97 3-34	4-51 4-80
Composition of	...	...	...	...	9-15 9-49	9-01 8-90	9-31 9-26	9-21 9-19
the Milk. { Total Solids	...	...	...	...	12-32 12-64	13-42 13-94	12-28 12-60	13-72 14-08
Actual weight of Fat, in lbs.	...	...	...	...	-66 -635	1-18 1-08	-85 -76	-985 -85
Calculation of Points multiply by 20...	...	...	...	...	13-2 10-7	23-6 21-6	17-0 15-2	19-70 17-0
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	1-90 1-61	2-42 1-91	2-68 2-1	2-0 1-61
Calculation of Points multiply by 4 ...	...	...	...	...	7-60 6-44	9-68 7-64	10-72 8-4	8-0 6-44
Points { For time since Calving	...	...	...	...	37-80	48-20	51-40	12-00
For weight of Milk (lbs.)	...	...	...	...	23-90	45-20	32-20	39-30
For weight of Fat (lbs. × 20)	...	...	...	...	14-04	17-32	19-12	36-70
For weight of Solids other than Fat (lbs. × 4)	...	...	...	...	75-74	110-72	102-72	14-44
Total	...	...	...	...	—	—	10-00	102-44
Deductions	...	...	...	...	75-74	110-72	92-72	—
Points gained...	...	...	...	...	—	—	—	102-44
Remarks and Awards	...	...	...	...	Reserve.	Reserve.	—	—

CLASS 2 — DAIRY SHORTHORN COWS (BORN AFTER 1ST AUGUST, 1916, AND PREVIOUS TO 1ST AUGUST, 1918)—Continued.

Number ...	41	43	45	46
Name ...	Waterbrook Rose.	Longhills Juno.	Enfield Viola 2nd.	Red Rose 4th.
Born ...	Jan. 21, 1917.	Oct. 22, 1916.	May 24, 1917.	Jan. 4, 1917.
Number of Calves ...	2	2	—	2
Last Calved ...	Sept. 14.	Oct. 3.	Oct. 1.	Oct. 3.
Days since Calving ...	33	14	16	14
Live weight, in lbs. ...	1,082	1,280	1,476	1,448
Weight of Milk, 1st day ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	30.0 24.1	27.0 22.1	24.2 22.3	23.7 19.1
Total ...	29.8 24.6	26.3 22.9	25.2 24.4	23.9 19.8
Average ...	59.8 48.7	53.3 45.0	49.4 46.7	47.6 38.9
Percentage { Fat ...	29.9 24.3	26.6 22.5	24.7 23.3	23.8 19.4
Composition of { Solids other than Fat	3.43 4.30	3.95 4.77	3.16 4.88	4.03 4.04
the Milk. { Total Solids ...	8.77 8.80	9.51 9.47	9.24 8.78	9.69 9.58
Actual weight of Fat, in lbs. ...	12.20 13.10	13.46 14.24	12.40 13.66	13.72 13.62
Calculation of Points multiply by 20... {	1.03 1.05	1.05 1.07	.78 1.14	.96 .78
Actual weight of Solids other than Fat, in lbs. {	20.6 21.0	21.0 21.4	15.6 22.8	19.2 15.6
Calculation of Points multiply by 4 ... {	2.62 2.14	2.55 2.13	2.28 2.05	2.3 1.86
Points { For time since Calving	10.48 8.56	10.20 8.52	9.12 8.20	9.2 7.44
For weight of Milk (lbs.) ...	54.20	49.10	48.00	43.20
For weight of Fat (lbs. × 20) ...	41.60	42.40	38.40	34.80
For weight of Solids other than Fat (lbs. × 4) ...	19.04	18.72	17.32	16.64
Total ...	114.84	110.22	103.72	94.64
Deductions ...	—	—	—	—
Points gained... {	114.84	110.22	103.72	94.64
Remarks and Awards ...	2nd Prize.	Very Highly Commended.		

CLASS 2.—DAIRY SHORTHORN COWS (BORN AFTER 1ST AUGUST, 1916, AND PREVIOUS TO 1ST AUGUST, 1918)—Continued.

Number ...	47 Kings-thorpe Rapherry 4th.	48 Batham Convales.	49 Strawberry.	50 Thornly Rhigét 3rd.
Name ...	Aug. 14, 1917.	Aug. 8, 1916.	Sept. 28, 1916.	Feb. 5, 1918.
Born ...	Sept. 13. 1	Aug. 29. 49	Sept. 26. 21	Sept. 23. 24
Number of Calves ...	1,278	1,370	1,428	1,344
Last Calved ...	Morn Even	Morn Even	Morn Even	Morn Even
Days since Calving ...	24-9 22-7	22-2 17-0	29-8 22-6	27-6 24-3
Live weight, in lbs. ...	25-5 20-6	22-9 18-5	27-6 25-9	28-5 24-0
Weight of Milk, 1st day ...	50-4 43-3	45-1 35-5	57-4 48-5	56-1 48-3
Weight of Milk, 2nd day ...	25-2 21-6	22-5 17-7	28-7 24-2	28-0 24-1
Total ...	2-92 4-14	3-76 3-97	3-33 4-27	3-44 4-41
Average ...	9-20 9-02	9-06 9-13	9-05 9-17	8-68 8-59
Percentage { Fat ...	12-12 13-16	12-82 13-10	12-38 13-44	12-12 13-00
Composition of { Solids other than Fat	735 -9	845 -7	96 1-04	96 1-06
the Milk. { Total Solids	14-70 18-0	16-90 14-0	19-2 20-8	19-2 21-2
Actual weight of Fat, in lbs. ...	2-32 1-95	2-04 1-6	2-60 2-22	2-43 2-07
Calculation of Points multiply by 20...	9-28 7-8	8-16 6-4	10-40 8-88	9-72 8-28
Actual weight of Solids other than Fat, in lbs.	—	90	—	—
Calculation of Points multiply by 4 ...	46-80	40-20	52-90	52-1
{ For time since Calving	32-70	30-90	40-00	40-4
For weight of Milk (lbs.) ...	17-08	14-56	19-28	18-0
For weight of Fat (lbs. × 20)	96-58	86-56	112-18	110-5
For weight of Solids other than Fat	10-00	—	—	—
(lbs. × 4) ...	86-58	86-56	112-18	110-5
Total ...	—	—	—	—
Deductions ...	—	—	—	—
Points gained... {	—	—	—	—
Remarks and Awards ...	—	—	3rd Prize.	Very Highly Commended.

CLASS 3.—DAIRY SHORTHORN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1918).

Number ...	...	...	53	55	58	64
Name ...	...	...	Combe Bank Rose, 1	Mama's Grand Daughter, 38	Mulcaster Honey, 28	Histon Blanca 2nd, 39
Born ...	...	...	Aug. 30, 1918.	May 23, 1919.	Jan. 1, 1919.	Jan. 23, 1919.
Number of Calves ...	...	...	1	—	—	—
Last Calved ...	...	...	Aug. 2.	Sept. 9.	Sept. 19.	Sept. 8.
Days since Calving ...	...	...	76	38	28	39
Live weight, in lbs. .	...	...	1,188	1,176	1,213	1,252
Weight of Milk, 1st day	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	12·8 12·5	14·4 11·8	14·0 11·9	12·3 10·3
Total	...	...	14·3 11·8	15·1 12·0	13·7 12·2	11·5 10·0
Average	...	...	27·1 24·3	29·5 23·8	27·7 24·1	23·8 20·3
Percentage { Fat ...	...	...	13·5 12·1	14·7 11·9	13·8 12·0	11·9 10·1
Composition of { Solids other than Fat	...	...	3·43 4·44	3·60 3·83	4·59 4·48	3·67 4·31
the Milk. { Total Solids	...	...	9·13 8·90	9·24 9·33	9·43 9·34	9·35 9·73
Actual weight of Fat, in lbs. ...	...	...	12·56 13·34	12·84 13·16	14·02 13·82	12·92 14·04
Calculation of Points multiply by 20...	...	...	·465 ·535	·53 ·455	·635 ·54	·425 ·435
Actual weight of Solids other than Fat, in lbs.	...	...	9·30 10·7	10·6 9·1	12·70 10·8	8·50 8·7
Calculation of Points multiply by 4 ...	...	...	1·23 1·08	1·36 1·11	1·30 1·12	1·11 ·985
Points { For time since Calving	...	...	4·92 4·32	5·44 4·44	5·20 4·48	4·44 3·94
{ For weight of Milk (lbs.)	...	...	25·60	26·60	25·80	22·00
{ For weight of Fat (lbs. × 20)	...	...	20·00	19·70	23·50	17·20
{ For weight of Solids other than Fat	...	...	9·24	9·88	9·68	8·38
(lbs. × 4) ...	...	...	54·84	56·18	58·98	47·58
Total ...	...	...	—	—	—	—
Deductions	...	...	54·84	56·18	58·98	47·58
Points gained...	...	...	—	—	—	—
Remarks and Awards ...	...	...	—	—	—	—

CLASS 3.—DAIRY SHORTHORN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1918).—Continued.

Number ...	...	...	...	67	68	70	72
Name ...	...	...	...	Bertha 20th	Budh-stone Bella Barrington	Tolluria Belle 3rd	Daisy 36th.
Born ...	...	...	...	Dec. 15, 1918.	Mar. 26, 1919.	Mar. 28, 1919.	Oct. 10, 1918.
Number of Calves ...	...	...	...	...	...	...	...
Last Calved ...	...	...	...	Sept. 25, 22	Sept. 5, 42	Aug. 29, 49	Aug. 27, 51
Days since Calving ...	...	...	...	1,204	1,332	1,174	1,202
Live weight, in lbs. ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day	...	...	...	10-7 11-7	17-9 15-4	14-6 12-5	13-6 11-3
Weight of Milk, 2nd day	...	...	...	12-7 11-8	16-6 15-7	14-8 13-7	10-7 13-3
Total	...	...	...	23-4 23-5	34-5 31-1	29-4 26-2	24-3 24-6
Average	...	...	...	11-7 11-7	17-2 15-5	14-7 13-1	12-1 12-3
Percentage of Fat ...	...	...	...	4-27 2-48	3-05 4-57	3-91 4-30	3-95 4-96
Composition of Solids other than Fat	...	...	...	8-99 9-36	9-05 8-81	9-23 9-30	8-83 9-00
the Milk. { Total Solids	...	...	...	13-26 11-84	12-10 13-38	13-14 13-60	12-78 13-96
Actual weight of Fat, in lbs. ...	...	...	...	-50 -29	-520 -71	-575 -56	-48 -61
Calculation of Points multiply by 20...	...	...	...	10-0 5-8	10-40 14-2	11-50 11-2	9-6 12-2
Actual weight of Solids other than Fat, in lbs.	...	...	...	1-05 1-1	1-56 1-37	1-35 1-22	1-07 1-11
Calculation of Points multiply by 4 ...	...	...	...	4-20 4-4	6-24 5-48	5-40 4-88	4-28 4-44
Points {	For time since Calving	...	...	...	20	90	1 10
	For weight of Milk (lbs.)	...	...	23-4	32-70	27-80	24-40
	For weight of Fat (lbs. × 20)	...	...	15-8	24-60	22-70	21-80
	For weight of Solids other than Fat (lbs. × 4) ...	...	...	4-6	11-72	10-28	8-72
Total ...	...	...	...	47-8	69-22	61-68	56-02
Deductions ...	...	...	...	10-0	—	—	—
Points gained...	...	...	...	37-8	69-22	61-68	56-02
Remarks and Awards ...	...	...	...	...	...	...	...

CLASS 3.—DAIRY SHORTHORN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1918)—Continued.

Number ...	...	...	...	73	75	76	78
Name ...	...	...	...	Lady Barrington.	Sybil Earl.	Crolette.	Loughlin's Melody.
Born ...	...	...	...	Feb. 18, 1919.	Dec 13, 1918.	Dec. 16, 1918.	Sept. 1, 1918.
Number of Calves ...	...	...	...	Sept. 14.	Sept. 19.	Sept. 13.	July 31.
Last Calved ...	...	...	...	33	28	34	77
Days since Calving ...	...	...	...	1,232	1,210	1,290	1,104
Live weight, in lbs. ...	...	...	...	Morn	Even	Morn	Even
Weight of Milk, 1st day ...	...	...	...	17.5	14.7	18.0	16.7
Weight of Milk, 2nd day ...	...	...	...	19.3	15.9	18.8	17.6
Total ...	...	...	...	36.8	30.6	36.8	34.3
Average ...	...	...	...	18.4	15.3	18.4	17.1
Percentage { Fat ...	...	...	...	4.36	3.82	3.46	3.64
Composition of { Solids other than Fat	...	...	...	9.32	9.26	9.08	9.38
the Milk. { Total Solids	...	...	...	13.68	13.08	12.54	13.34
Actual weight of Fat, in lbs. ...	...	...	...	.80	.585	.64	.70
Calculation of Points multiply by 20...	...	...	...	16.0	11.7	12.8	14.0
Actual weight of Solids other than Fat, in lbs.	...	...	...	1.72	1.42	1.67	1.75
Calculation of Points multiply by 4 ...	...	...	...	6.88	5.68	6.68	7.00
Points { For time since Calving	...	...	...	33.70	31.80	34.5	36.4
{ For weight of Milk (lbs.)	...	...	...	27.70	21.70	26.6	27.5
{ For weight of Fat (lbs. × 20)	...	...	...	12.56	11.92	12.5	13.4
{ For weight of Solids other than Fat	...	...	...	73.96	65.42	73.6	81.0
(lbs. × 4) ...	...	...	...	73.96	65.42	73.6	81.0
Total ...	...	...	...	73.96	65.42	73.6	81.0
Deductions ...	...	...	...	73.96	65.42	73.6	81.0
Points gained...	...	...	...	73.96	65.42	73.6	81.0
Remarks and Awards ...	...	...	...	2nd Prize.		Reserve.	1st Prize.

CLASS 3.—DAIRY SHORTHORN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1918)—Continued.

Number ... Name ...	...	...	...	79 Avisford Cyrene.	81 Thurnham Sheela.	82 Melody 40th.
Born ...	...	...	...	Feb. 5, 1919.	Nov. 2, 1918.	Dec. 7, 1918.
Number of Calves ...	...	...	...	Sept. 3.	—	Sept. 26.
Last Calved ...	...	...	...	44	—	21
Days since Calving ...	...	...	...	1,001	1,216	1,156
Live weight, in lbs. ...	...	...	...	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day ...	...	...	...	20.0 14.7	18.5 13.4	15.1 13.7
Weight of Milk, 2nd day ...	...	...	...	18.5 14.8	7.6 10.2	15.2 13.7
Total ...	...	...	...	38.5 29.5	26.1 23.6	30.3 27.4
Average ...	...	...	...	19.2 14.7	13.0 11.8	15.1 13.7
Percentage { Fat ...	...	...	...	3.92 4.19	3.56 3.54	3.52 4.53
Composition of { Solids other than Fat	...	...	...	8.70 9.31	9.30 9.04	9.32 9.37
the Milk. { Total Solids	...	...	...	12.62 13.50	12.86 12.58	12.84 13.90
Actual weight of Fat, in lbs. ...	...	...	...	.75 .615	.46 .42	.53 .62
Calculation of Points multiply by 20... Actual weight of Solids other than Fat, in lbs.	...	...	...	15.0 12.3	9.2 8.4	10.6 12.4
Calculation of Points multiply by 4 ...	...	...	...	1.67 1.37	1.20 1.07	1.41 1.27
Points { For time since Calving ...	...	...	...	6.68 5.48	4.80 4.28	5.64 5.08
For weight of Milk (lbs.) ...	...	...	...	.40	—	—
For weight of Fat (lbs. × 20) ...	...	...	...	33.90	24.80	28.8
For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	27.30	17.60	23.0
Total ...	...	...	...	12.16	9.08	10.7
Deductions ...	...	...	...	73.76	51.48	62.5
Points gained... Remarks and Awards ...	...	...	...	73.76	51.48	62.5
3rd Prize.	...	...	...	—	—	—

CLASS 4.—DAIRY SHORTHORN COWS (NOT ELIGIBLE FOR CLASSES 1 AND 2).

Number ...	...	...	...	...	83 Southfield Lady.	84 Southfield Duchess	86 Gianboro' Vernona.	87 Ringlet.
Name ...	...	...	...	...	...	Unknown.	Unknown.	1916. 3
Born ...	...	...	...	...	May, 1915.	—	—	Aug. 7. 71
Number of Calves ...	...	...	...	...	Sept. 25. 22	Sept. 26. 21	—	1,400
Last Calved ...	...	...	...	...	1,446	1,468	1,312	—
Days since Calving ...	...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Lave weight, in lbs. ...	...	...	...	...	27-5 23-3	27-5 26-1	26-4 21-9	16-4 14-8
Weight of Milk, 1st day ...	...	...	...	...	27-4 25-1	28-9 27-5	25-9 21-4	10-4 withdrawn
Weight of Milk, 2nd day ...	...	...	...	...	54-9 48-4	56-4 53-6	52-3 43-3	26-8 —
Total ...	...	...	...	...	27-4 24-2	28-2 26-8	26-1 21-6	13-4 —
Average ...	...	...	...	...	6-11 6-64	4-14 4-43	2-15 3-20	3-25 6-14
Percentage { Fat ...	...	...	...	...	8-91 8-72	9-62 9-17	9-09 9-16	9-35 8-80
Composition of { Solids other than Fat	...	...	...	...	15-02 15-36	13-76 13-60	11-24 12-36	12-60 14-94
the Milk. { Total Solids	...	...	...	...	1-62 1-61	1-17 1-19	-56 -69	-435 —
Actual weight of Fat, in lbs. ...	...	...	...	...	32-4 32-2	23-4 23-8	11-2 13-8	8-7 —
Calculation of Points multiply by 20...	...	...	...	...	2-46 2-11	2-71 2-46	2-38 1-98	1-25 —
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	9-84 8-44	10-84 9-84	9-52 7-92	-5-0 —
Calculation of Points multiply by 4 ...	...	...	...	...	—	—	—	—
Points {	For time since Calving	...	...	...	
	For weight of Milk (lbs.)		51-6	...	55-0	47-7	47-7	—
	For weight of Fat (lbs. × 20)		64-6	...	47-2	25-0	25-0	—
	For weight of Solids other than Fat		18-3	...	20-7	17-4	17-4	—
	(lbs. × 4) ...		134-5	...	122-9	90-1	90-1	—
Remarks and Awards ...	Total ...		—	...	—	—	—	—
	Deductions ...		134-5	...	122-9	80-1	80-1	—
	Points gained...		—	...	—	—	—	—
				3rd Prize.	Highly Commended			

CLASS 4.—DAIRY SHORTHORN COWS (NOT ELIGIBLE FOR CLASSES 1 AND 2) (continued).

Number ...	...	...	...	88	89	90	92
Name ...	...	...	...	Fair Oak Beauty.	Golden Sovereign.	Florence 2nd.	Lady Nelson.
Born ...	...	...	...	1916	1914.	July 26, 1915.	1915.
Number of Calves ...	...	...	...	2	5	...	...
Last Calved ...	...	...	...	Oct. 3.	July 15.	Sept. 23.	Oct. 1.
Days since Calving ...	...	...	...	14	94	24	16
Live weight, in lbs. ...	...	...	...	1,270	1,270	1,516	1,205
Weight of Milk, 1st day ...	...	...	...	Morn	Morn	Morn	Morn
Weight of Milk, 2nd day ...	...	...	...	Even	Even	Even	Even
Total ...	...	...	...	30.9 27.2	42.0 33.9	22.9 18.1	32.0 25.7
Average ...	...	...	...	30.6 25.3	47.6 30.7	21.3 18.2	31.8 26.9
Percentage { Fat ...	...	...	...	61.5 52.5	89.6 64.6	44.2 36.3	63.8 52.6
Composition of { Solids other than Fat	...	...	...	30.7 26.6	44.8 32.3	22.1 18.1	31.9 26.3
the Milk. { Total Solids	...	...	...	4.11 4.92	3.00 3.52	5.44 4.30	4.53 5.20
Actual weight of Fat, in lbs. ...	...	...	...	9.21 8.88	8.66 8.60	9.08 9.20	8.99 9.08
Calculation of Points multiply by 20...	...	...	...	13.32 13.80	11.46 12.12	14.52 13.50	13.52 14.28
Actual weight of Solids other than Fat, in lbs.	...	...	...	1.26 1.31	1.34 1.14	1.2 78	1.45 1.37
Calculation of Points multiply by 4 ...	...	...	...	25.2 26.2	26.8 22.8	24.0 15.6	29.0 27.4
Points { For time since Calving	...	...	...	2.83 2.37	3.89 2.78	2.0 1.66	2.86 2.4
{ For weight of Milk (lbs.)	...	...	...	11.32 9.48	15.56 11.12	8.0 6.64	11.44 9.6
{ For weight of Fat (lbs. × 20)	...	...	...	56.9	5.40	40.20	58.2
{ For weight of Solids other than Fat	...	...	...	51.4	77.10	39.60	56.4
(lbs. × 4) ...	...	...	...	20.8	49.60	14.64	21.0
Total ...	...	...	...	129.1	26.70	94.44	135.6
Deductions ...	...	...	...	—	158.80	—	—
Points gained...	...	...	...	129.1	158.80	94.44	135.6
Remarks and Awards ...	...	...	...	Very Highly Commended.	1st Prize Reserve for Batham Reserve for Shirley Challenge (10)	—	2nd Prize.

CLASS 4.—DAIRY SHORTHORN COWS (NOT ELIGIBLE FOR CLASSES 1 AND 2)—Continued.

Number ...	...	...	...	93 Milkmaid 2nd.	94 Tulip	95 Maidia.	96 Pretty Maid 2nd.
Name ...	...	...	...	April 3, 1918.	1915.	Unknown.	Unknown.
Born ...	...	...	...	Sept. 19.	Sept. 30.	Sept. 29.	Sept. 23.
Last Calved ...	...	...	...	28	17	18	24
Days since Calving ...	...	...	...	1,514	1,198	1,311	1,520
Live weight, in lbs. ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day ...	...	...	...	30.0	29.1	20.7	28.3
Weight of Milk, 2nd day ...	...	...	...	27.6	25.5	21.6	25.2
Total ...	...	...	...	57.6	54.6	42.3	56.9
Average ...	...	...	...	28.8	27.3	21.1	51.8
Percentage of Fat ...	...	...	...	3.30	4.79	4.85	28.4
Composition of Solids other than Fat ...	...	...	...	9.32	9.75	9.35	25.9
the Milk. { Total Solids ...	...	...	...	12.62	14.40	14.20	4.01
Actual weight of Fat, in lbs. ...	...	...	...	.95	1.31	1.02	9.41
Calculation of Points multiply by 20...	...	...	...	19.0	26.2	20.4	13.40
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	2.68	2.66	1.97	13.14
Calculation of Points multiply by 4 ...	...	...	...	10.72	10.64	7.88	20.8
Points { For time since Calving ...	...	...	...	56.60	49.30	38.90	2.68
For weight of Milk (lbs.) ...	...	...	...	48.40	45.00	38.00	2.43
For weight of Fat (lbs. × 20) ...	...	...	...	20.90	15.96	14.48	10.72
For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	125.90	113.26	91.38	9.72
Total ...	...	...	...	125.90	113.26	91.38	54.30
Deductions ...	...	...	...				42.00
Points gained...	...	...	...				20.44
Remarks and Awards ...	...	...	...				116.74
	...	...	...				116.74
	...	...	...				Highly Commended.

CLASS 4.—DAIRY SHORTHORN COWS (NOT ELIGIBLE FOR CLASSES 1 AND 2).—Continued.

Number ...	...	...	...	97	98	99
Name ...	...	...	...	Allthorpe Mary.	Primrose 5th.	Dairymaid.
Born ...	...	...	...	Unknown.	Unknown.	Unknown.
Number of Calves	...	...	...	Sept. 15.	Oct. 4.	Sept. 18.
Last Calved ...	...	...	...	32	13	29
Days since Calving	...	...	...	1,365	1,284	1,396
Live weight, in lbs.	...	...	...	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day	...	...	...	24.0 22.2	27.1 23.5	33.1 29.1
Weight of Milk, 2nd day	...	...	...	24.9 20.1	26.5 24.2	32.8 26.1
Total	...	...	...	48.9 42.3	53.6 47.7	65.9 55.2
Average ...	...	...	...	24.4 21.1	26.8 23.8	32.9 27.6
Percentage	...	...	...	3.73 4.42	3.47 4.98	3.92 4.42
Composition of	...	...	...	9.13 8.82	9.31 9.42	8.86 8.92
the Milk. {	...	...	...	12.86 13.24	12.78 14.40	12.78 13.34
Total Solids	...	...	...	.91 .935	.93 1.19	1.29 1.22
Actual weight of Fat, in lbs. ...	...	...	...	18.2 18.7	18.6 23.8	25.8 24.4
Calculation of Points multiply by 20...	...	...	...	2.24 1.86	2.5 2.24	2.92 2.46
Actual weight of Solids other than Fat, in lbs.	...	...	...	8.96 7.44	10.0 8.96	11.68 9.84
Calculation of Points multiply by 4 ...	...	...	...	...	...	...
Points {	...	...	...	45.50	50.60	60.50
For time since Calving	...	...	...	36.90	42.40	50.20
For weight of Milk (lbs.)	...	...	...	16.40	18.96	21.52
For weight of Fat (lbs. × 20)	...	...	...	98.8	111.96	132.22
For weight of Solids other than Fat	...	...	...	...	...	...
(lbs. × 4) ...	...	...	...	98.8	111.96	132.22
Total ...	...	...	...	...	...	...
Deductions	...	...	...	...	...	...
Points gained...	...	...	...	...	...	...
Remarks and Awards ...	...	...	...	Highly Commended.	...	Reserve.

CLASS 5.—DAIRY SHORTHORN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1918. NOT ELIGIBLE FOR CLASS 3).

Number ...	...	...	...	101 Strawberry 2nd.	107 Southfield Alice.	109 Inoklands Dan ymand	110 Inoklands Infter up
Name ...	...	...	...	Aug. 25, 1918.	Oct., 1918.	Nov. 15, 1918.	Sept. 23, 1918.
Born ...	...	...	...	—	Oct. 3.	Sept. 22.	Sept. 19.
Number of Calves ...	...	...	...	—	14	25	28
Last Calved ...	...	...	...	—	1,043	1,346	1,188
Days since Calving ...	...	...	...	—	—	—	—
Live weight, in lbs.	...	...	...	1,112	—	—	—
Weight of Milk, 1st day	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	20.9 18.3	20.0 16.4	22.1 18.7	17.6 14.9
Total	...	...	...	6.5 13.2	21.3 16.8	24.7 20.0	17.3 14.7
Average	...	...	...	27.4 31.5	41.3 33.2	46.8 38.7	34.9 29.6
Percentage { Fat ...	...	...	...	13.7 15.7	20.6 16.6	23.4 19.3	17.4 14.8
Composition of { Solids other than Fat	...	...	...	2.91 2.95	4.36 3.52	2.98 3.24	4.15 5.12
the Milk. { Total Solids	...	...	...	8.59 9.03	10.08 10.06	9.78 9.76	9.89 9.74
Actual weight of Fat, in lbs. ...	...	...	...	11.50 11.98	14.44 13.58	12.76 13.00	14.04 14.86
Calculation of Points multiply by 20 ...	...	...	...	40 46.5	90 58.5	70 62.5	72 76
Actual weight of Solids other than Fat, in lbs.	...	...	...	8.00 9.3	18.00 11.7	14.00 12.5	14.4 15.2
Calculation of Points multiply by 4 ...	...	...	...	1.18 1.42	2.06 1.67	2.30 1.88	1.73 1.44
Points { For time since Calving	...	...	...	4.72 5.68	8.24 6.68	9.20 7.52	6.92 5.76
For weight of Milk (lbs.) ...	...	...	...	29.4	37.20	42.70	32.2
For weight of Fat (lbs. × 20)	...	...	...	17.3	29.70	26.50	29.6
For weight of Solids other than Fat	...	...	...	10.4	14.92	16.72	12.7
(lbs. × 4)	...	...	...	57.1	81.82	85.92	74.5
Total ...	...	...	...	20.0	—	10.00	—
Deductions	...	...	...	37.1	81.82	75.92	74.5
Points gained...	...	...	...	—	—	—	—
Remarks and Awards ...	...	...	...	3rd Prize.	Reserve.	—	—

CLASS 6.—LINCOLN RED SHORTHORN COWS.

Number ... Name ...	...	...	...	...	113		115		116		118	
					Sudbrook 129 G.		Sudbrook 184 C.		Bendish Pearl 5th.		Burton Fillingham.	
Born ...	...	...	...	...	June 28, 1914.	5	July 31, 1911.	7	Aug. 21, 1916.	2	April 20, 1915.	3
Number of Calves ...	...	...	...	...	June 10.	129	Aug. 10.	68	Sept. 22.	25	Sept. 12.	35
Last Calved ...	...	...	...	...	1,638		1,472		1,321		1,386	
Days since Calving ...	...	...	...	...	Morn	Even	Morn	Even	Morn	Even	Morn	Even
Live weight, in lbs. ...	...	...	...	...	20 4	21 3	24 1	22 4	27 6	22 7	37 8	33 4
Weight of Milk, 1st day ...	...	...	...	...	23 4	18 5	25 8	22 9	28 1	24 9	39 7	33 3
Weight of Milk, 2nd day ...	...	...	...	...	43 8	39 8	49 9	45 3	55 7	47 6	77 5	66 7
Total ...	...	...	...	...	21 9	19 9	24 9	22 6	27 8	23 8	38 7	33 3
Average ...	...	...	...	...	2 49	3 33	2 95	3 91	2 95	2 66	3 29	4 97
Percentage { Fat ...	...	...	...	...	9 11	9 05	9 31	9 05	8 95	8 84	9 25	9 15
Composition of { Solids other than Fat	...	...	...	...	11 00	12 38	12 26	12 96	11 90	11 50	12 54	14 12
the Milk. { Total Solids	...	...	...	...	545	66	735	88	82	635	1 28	1 65
Actual weight of Fat, in lbs. ...	...	...	...	...	10 90	13 2	14 7	17 6	16 4	12 7	25 6	33 0
Calculation of Points multiply by 20 ...	...	...	...	...	2 0	1 8	2 32	2 05	2 50	2 1	3 58	3 04
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	8 0	7 2	9 28	8 2	10 00	8 4	14 32	12 16
Calculation of Points multiply by 4 ...	...	...	...	...	8 9		2 8					
Points { For time since Calving ... For weight of Milk (lbs.) ... For weight of Fat (lbs. × 20) ... For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	41 8		47 5		51 6		72 0	
	...	...	...	...	24 1		32 3		29 1		58 6	
	...	...	...	...	15 2		17 5		18 4		26 5	
	...	...	...	...	90 0		100 1		99 1		157 1	
	...	...	...	...	10 0		10 0		20 0		—	
Points gained...	...	...	...	...	80 0		90 1		79 1		157 1	
Remarks and Awards ...	...	...	...	...							1st Prize, Reserve for Spencer (Challenge Cup).	

CLASS 6.—LINCOLN RED SHORTHORN COWS—Continued.

Number ...	...	...	...	...	...	120	122	123	125
						Burton Suttie 2nd. May, 1914. June 24. 115 1,354	Burton Amy 8th. Nov. 21, 1916. Sept. 10. 37 1,416	Langford Polly 6th. Sept., 1914. — — 1,274	Lenborough Poppy. Mar. 11, 1916. — Sept. 9. 38 1,426
Born ...	...	...	...	...	...	Morn Even 34-2 24-9	Morn Even 27-9 22-8	Morn Even 29-7 24-4	Morn Even 19-0 18-4
Number of Calves ...	...	...	...	...	...	30-9 25-5	28-1 22-1	28-4 22-9	21-9 19-4
Last Calved ...	...	...	...	...	...	71-1 50-4	56-0 44-9	58-1 47-3	40-9 37-8
Days since Calving ...	...	...	...	...	...	35-5 25-2	28-0 22-4	29-0 23-6	20-4 18-9
Live weight, in lbs. ...	...	...	...	...	...	Average ...	Average ...	Average ...	Average ...
Weight of Milk, 1st day ...	...	...	...	...	...	4-19 3-91	3-27 3-92	3-09 3-90	3-88 3-83
Weight of Milk, 2nd day ...	...	...	...	...	...	8-83 9-09	9-09 8-94	8-93 8-94	9-36 9-35
Composition of ...	...	...	...	...	...	13-02 13-00	12-36 12-86	12-02 12-84	13-24 13-28
the Milk, ...	...	...	...	...	...	1-48 .985	.92 .88	.90 .92	.79 .745
Actual weight of Fat, in lbs. ...	...	...	...	...	...	29-6 19-7	18-4 17-6	18-0 18-4	15-8 14-9
Calculation of Points multiply by 20 ...	...	...	...	...	...	3-14 2-29	2-54 2-0	2-60 2-1	1-91 1-77
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	...	...	12-56 9-16	10-16 8-0	10-40 8-4	7-64 7-08
Calculation of Points multiply by 4 ...	...	...	...	...	...	7-5	—	—	—
Points { For time since Calving ...	...	...	...	...	...	60-7	50-4	52-6	39-3
{ For weight of Milk (lbs.) ...	...	...	...	...	...	49-3	36-0	36-4	30-7
{ For weight of Fat (lbs. × 20) ...	...	...	...	...	...	21-7	18-2	18-8	14-7
{ For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	...	139-2	104-6	107-8	84-7
Total ...	...	...	...	...	...	—	—	—	—
Deductions ...	...	...	...	...	...	139-2	104-6	107-8	84-7
Points gained ...	...	...	...	...	...	2nd Prize.	Reserve.	3rd Prize.	
Remarks and Awards ...	...	...	...	...	...

CLASS 7.—LINCOLN RED SHORTHORN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1918).

Number ...	...	...	...	126	127	128	130
Name ...	...	...	...	Burton Ruby Spot 15th	Burton Hetie 7th	Burton Bramble 3rd.	Langford Polly 9th.
Born ...	...	...	...	Sept. 16, 1918.	Oct. 23, 1918.	Dec. 14, 1918.	Sept. 6, 1918.
Number of Calves ...	...	...	...	Sept. 4.	Sept. 19.	Sept. 5.	—
Last Calved ...	...	...	...	43	28	42	—
Days since Calving ...	...	...	...	1,238	1,303	1,078	1,052
Live weight, in lbs. ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day ...	...	...	...	20-3 18-0	24-1 18-4	20-8 18-1	25-1 19-7
Weight of Milk, 2nd day ...	...	...	...	20-4 17-2	20-3 15-5	21-6 17-3	24-8 19-8
Total ...	...	...	...	40-7 35-2	44-4 33-9	42-4 35-4	49-9 39-5
Average ...	...	...	...	20-3 17-6	22-2 16-9	21-2 17-7	24-9 19-7
Percentage { Fat ...	...	...	...	3-52 5-24	3-81 4-65	4-13 3-84	4-25 3-73
Composition of { Solids other than Fat	...	...	...	9-32 9-20	9-35 9-37	8-55 9-30	9-19 9-33
the Milk. { Total Solids ...	...	...	...	12-84 14-44	13-16 14-02	12-68 13-30	13-44 13-06
Actual weight of Fat, in lbs. ...	...	...	...	.715 .925	.845 .785	.875 .68	1-06 .73
Calculation of Points multiply by 20 ...	...	...	...	14-30 18-5	16-90 15-7	17-50 13-6	21-2 14-6
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	1-90 1-62	2-08 1-58	1-81 1-67	2-28 1-83
Calculation of Points multiply by 4 ...	...	...	...	7-60 6-48	8-32 6-32	7-24 6-68	9-12 7-32
Points { For time since Calving	...	...	...	.3	—	.2	—
{ For weight of Milk (lbs.)	...	...	...	37-9	39-1	38-9	44-6
{ For weight of Fat (lbs. × 20)	...	...	...	32-8	32-6	31-1	35-8
{ For weight of Solids other than Fat	...	...	...	14-1	14-6	13-9	16-4
{ (lbs. × 4) ...	...	...	...	85-1	86-3	84-1	96-8
Total ...	...	...	...	—	—	—	—
Deductions ...	...	...	...	85-1	86-3	84-1	96-8
Points gained ...	...	...	...	—	—	—	—
Remarks and Awards ...	...	...	...	3rd Prize.	2nd Prize.	Reserve.	1st Prize.

CLASS 8.—JERSEY COWS.

Number ...	...	132	134	136	137
Name ...	...	Happy Girl.	Plymouth Lady.	Ursanne Belle	Frontiers Maid.
Born ...	...	Feb. 4, 1918.	May 31, 1916.	Jan. 26, 1918.	Feb. 7, 1917.
Number of Calves ...	...	2	4	2	—
Last Calved ...	...	Aug. 21.	June 1.	April 9.	April 23.
Days since Calving ...	...	57	138	191	177
Live weight, in lbs. ...	...	798	960	836	848
Weight of Milk, 1st day ...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	19-4 18-3	15-0 8-4	16-8 14-9	9-6 9-8
Total ...	...	18-8 14-7	20-9 13-6	16-9 14-5	10-2 9-2
Average ...	...	38-2 33-0	35-9 22-0	33-7 29-4	19-8 19-0
Percentage of Fat ...	...	19-1 16-5	17-9 11-0	16-8 14-7	9-9 9-5
Composition of Solids other than Fat the Milk.	...	4-05 4-49	3-35 2-75	4-15 5-44	4-47 6-29
Actual weight of Fat, in lbs. ...	...	9-19 9-23	9-31 9-27	9-39 9-60	9-59 9-15
Calculation of Points multiply by 20 ...	...	13-24 13-72	12-66 12-02	13-54 15-04	14-06 15-44
Actual weight of Solids other than Fat, in lbs. ...	...	.77 .74	.60 .302	.70 .8	.445 .6
Calculation of Points multiply by 4 ...	...	15-4 14-8	12-0 6-04	14-0 16-0	8-90 12-0
Actual weight of Solids other than Fat, in lbs. ...	...	1-75 1-52	1-67 1-02	1-58 1-41	.95 .87
Calculation of Points multiply by 4 ...	...	7-00 6-08	6-68 4-08	6-32 5-64	3-80 3-48
Points { For time since Calving For weight of Milk (lbs.) For weight of Fat (lbs. × 20) For weight of Solids other than Fat (lbs. × 4) ...	...	1-7 35-6 30-2 13-1	9-80 28-90 18-04 10-76	12-0 31-5 30-0 12-0	12-0 19-4 20-9 7-3
Total ...	...	80-6	67-50	85-5	59-6
Deductions ...	...	—	10-00	—	—
Points gained ...	...	80-6	57-50	85-5	59-6
Remarks and Awards ...	...			

CLASS 8.—JERSEY COWS—Continued.

Number ...	...	...	...	138	139	143	145
Name ...	...	...	...	Laddie's Daisy.	Cowslip Hussey.	Elegant Finance.	Golden Gamboline.
Born ...	...	...	...	Jan. 24, 1917.	April 21, 1918.	Aug. 17, 1912.	Nov. 2, 1916.
Number of Calves ...	...	...	...	July 13.	April 28.	May 2.	Aug. 6.
Last Calved ...	...	...	...	96	172	168	72
Days since Calving ...	...	...	...	724	842	854	782
Live weight, in lbs.	...	...	...	Morn	Morn	Morn	Morn
	...	...	...	Even	Even	Even	Even
Weight of Milk, 1st day	...	...	...	13-9	12-6	15-8	20-8
Weight of Milk, 2nd day	...	...	...	13-7	13-8	12-7	12-3
Total	...	...	...	27-6	26-4	11-9	17-3
Average	...	...	...	13-8	13-2	16-8	14-0
Percentage	...	...	...	5-09	4-25	6-11	4-00
Composition	...	...	...	9-79	9-59	12-7	20-8
the Milk.	...	...	...	14-88	13-84	15-8	18-2
	...	...	...	-70	-56	31-6	39-0
	...	...	...	14-0	11-2	24-6	31-3
Actual weight of Fat, in lbs.	...	...	...	-6	-62	15-8	19-5
Calculation of Points multiply by 20...	...	...	...	1-35	1-1	15-6	15-6
Actual weight of Solids other than Fat, in lbs.	...	...	...	5-40	5-08	6-00	4-00
Calculation of Points multiply by 4 ...	...	...	...	5-6	12-0	12-0	3-86
For time since Calving	...	...	...	25-5	24-7	28-1	35-1
For weight of Milk (lbs.)	...	...	...	26-0	23-6	35-9	27-6
For weight of Fat (lbs. × 20)	...	...	...	9-8	9-5	10-7	13-2
For weight of Solids other than Fat	...	...	...	66-9	69-8	86-7	79-1
(lbs. × 4) ...	...	...	...	—	—	—	—
Total	...	...	...	66-9	69-8	86-7	79-1
Deductions	...	...	...	—	—	—	—
Points gained...	...	...	...	66-9	69-8	86-7	79-1
Remarks and Awards ...	...	...	...			Reserve.	

CLASS 8.—JERSEY COWS—Continued.

Number ...	...	...	146	148	150	151
Name ...	...	...	Limbertost.	Deck Weed.	Hapkey's Pavilion's Lane	Distressed Lady.
Born ...	...	...	Feb. 25, 1917.	Mar. 16, 1916.	Mar. 4, 1917.	April 26, 1915.
Number of Calves ...	...	...	—	—	3	4
Last Calved ...	...	...	Aug. 7.	Mar. 9.	May 31.	April 4.
Days since Calving ...	...	...	71	222	139	196
Live weight, in lbs. ...	...	...	802	910	914	802
Weight of Milk, 1st day ...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	...	15.2 11.9	18.2 17.0	16.0 14.7	11.0 10.7
Total ...	...	...	15.0 10.9	17.8 15.8	17.3 14.4	10.6 8.0
Average ...	...	...	30.2 22.8	36.0 32.8	33.3 29.1	21.6 18.7
...	...	...	15.1 11.4	18.0 16.4	16.6 14.5	10.8 9.3
Percentage of Fat ...	...	...	5.76 5.68	4.66 6.45	4.15 5.03	4.31 6.68
Composition of the Milk. { Solids other than Fat	...	...	9.72 9.60	9.32 9.03	9.29 9.11	9.17 8.56
Total Solids	...	...	15.48 15.28	13.98 15.48	13.44 14.14	13.48 15.24
Actual weight of Fat, in lbs. ...	...	...	.87 .65	.84 1.06	.69 .73	.465 .62
Calculation of Points multiply by 20...	...	...	17.4 13.0	16.8 21.2	13.8 14.6	9.30 12.4
Actual weight of Solids other than Fat, in lbs.	...	...	1.47 1.09	1.68 1.48	1.54 1.32	.99 .8
Calculation of Points multiply by 4 ...	...	...	5.88 4.36	6.72 5.92	6.16 5.28	3.96 3.2
{ For time since Calving	...	...	3.1	12.0	9.9	12.0
For weight of Milk (lbs.) ...	...	...	26.5	34.4	31.1	20.1
For weight of Fat (lbs. × 20)	...	...	30.4	38.0	28.4	21.7
For weight of Solids other than Fat	...	...	10.2	12.6	11.4	7.2
(lbs. × 4) ...	...	...	70.2	97.0	80.8	61.0
Total ...	...	...	—	—	—	—
Deductions ...	...	...	70.2	97.0	80.8	61.0
Points gained...	...	...	—	—	—	—
Remarks and Awards ...	...	...	2nd Prize.	—	—	—

CLASS 8.—JERSEY COWS—Continued.

Number ...	152	154	156	157
Name ...	Amelia Agnes.	Meadow Vale Pride.	Queen Rosebay.	Duchess Prudence.
Born ...	May 23, 1918.	April 1, 1913.	July 22, 1918.	Jan. 14, 1918.
Number of Calves ...	—	7	2	2
Last Calved ...	Aug. 4.	June 16.	July 9.	June 6.
Days since Calving ...	74	123	100	133
Live weight, in lbs. ...	794	858	824	788
	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day ...	12.3	21.3	14.2	10.5
Weight of Milk, 2nd day ...	13.2	20.8	15.5	13.3
Total ...	25.5	42.1	29.7	23.8
Average ...	12.7	21.0	14.8	11.9
Percentage { Fat ...	3.97	4.42	5.59	3.87
Composition of { Solids other than Fat ...	9.85	9.10	9.73	10.15
the Milk. { Total Solids ...	13.82	13.52	15.32	14.02
Actual weight of Fat, in lbs. ...	505	93	83	46
Calculation of Points multiply by 20 ...	10.10	18.6	16.6	9.2
Actual weight of Solids other than Fat, in lbs. ...	1.25	1.90	1.43	1.21
Calculation of Points multiply by 4 ...	5.00	7.60	5.72	4.84
Points { For time since Calving ...	3.4	8.3	6.0	9.3
{ For weight of Milk (lbs.) ...	23.3	38.2	27.5	23.2
{ For weight of Fat (lbs. × 20) ...	21.1	35.5	31.0	23.8
{ For weight of Solids other than Fat (lbs. × 4) ...	9.1	13.8	10.7	9.2
Total ...	56.9	95.8	75.2	65.5
Deductions ...	—	—	—	—
Points gained ...	56.9	95.8	75.2	65.5
Remarks and Awards ...	3rd Prize.			

Class 8.—JERSEY COWS—Continued.

Number ...	...	...	...	160	161	162A
Name ...	...	...	...	Marsellaise.	Meytham Panline.	(olden Fleece 9th.
Born ...	...	...	...	Jan. 19, 1917.	July 20, 1917.	June 8, 1914.
Number of Calves	...	...	...	3	2	—
Last Calved	...	...	...	June 13.	June 15.	July 5.
Days since Calving	...	...	...	126	124	104
Live weight, in lbs.	...	...	...	790	778	965
Weight of Milk, 1st day	...	...	...	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	19.8 15.9	18.8 14.8	19.6 15.2
Total	...	...	...	17.3 16.2	15.7 13.9	18.6 14.9
Average	...	...	...	37.1 32.1	34.5 28.7	38.2 30.1
Percentage of Fat ...	...	...	...	18.5 16.0	17.2 14.3	19.1 15.0
Composition of the Milk. { Fat ...	...	...	...	6.55 6.36	4.19 4.98	5.72 4.63
{ Solids other than Fat	...	...	...	9.09 9.36	8.75 8.84	9.28 9.19
{ Total Solids	...	...	...	15.64 15.72	12.94 13.82	15.00 13.82
Actual weight of Fat, in lbs. ...	...	...	...	1.21 1.02	.72 .71	1.09 .695
Calculation of Points multiply by 20...	...	...	...	24.2 20.4	14.4 14.2	21.8 13.9
Actual weight of Solids other than Fat, in lbs.	...	...	...	1.68 1.5	1.50 1.26	1.77 1.37
Calculation of Points multiply by 4 ...	...	...	...	6.72 6.0	6.00 5.04	7.08 5.48
Points { For time since Calving	...	...	...	8.6	8.4	—
{ For weight of Milk (lbs.)	...	...	...	34.5	31.5	34.1
{ For weight of Fat (lbs. × 20)	...	...	...	44.6	28.6	35.7
{ For weight of Solids other than Fat (lbs. × 4)	...	...	...	12.7	11.0	12.5
Total ...	...	...	...	100.4	79.5	82.3
Deductions ...	...	...	...	—	—	—
Points gained...	...	...	...	100.4	79.5	82.3
Remarks and Awards ...	...	...	...	1st Prize.		

CLASS II.—GUERNSEY COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1916)

Number ...	...	...	...	203	204	205	207
Name ...	...	...	...	Trequean Lady 2nd.	Godolphin Pansy.	Daisy 3rd of Les Mauv. Marquis	Fanny du Foulon 22nd
Born ...	...	...	...	Jan. 20, 1915.	Sept. 20, 1907.	June 4, 1913	July 3, 1911.
Number of Calves	...	...	...	4	—	—	8
Last Calved	...	...	...	Feb. 24.	Aug. 27.	Sept. 14.	May 26.
Days since Calving	...	...	...	235	51	33	144
Live weight, in lbs.	...	...	...	1,118	1,217	1,161	1,166
	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day	...	...	...	15.6	26.0	18.6	20.5
Weight of Milk, 2nd day	...	...	...	16.5	21.1	18.4	14.7
Total	...	...	...	32.1	26.6	19.5	19.4
Average	...	...	...	16.00	52.6	38.1	39.9
	...	...	...	11.9	43.7	35.7	29.3
	...	...	...	16.00	26.3	19.00	19.9
Percentage { Fat ...	...	...	...	5.83	4.11	4.54	4.71
Composition of { Solids other than Fat	...	...	...	9.27	4.97	7.07	4.66
the Milk. { Total Solids	...	...	...	15.20	9.43	9.03	8.91
Actual weight of Fat, in lbs.	...	...	...	15.20	14.32	13.66	13.70
Calculation of Points multiply by 20...	...	...	...	.95	1.08	.86	.94
Actual weight of Solids other than Fat, in lbs.	...	...	...	19.0	21.6	17.2	18.8
Calculation of Points multiply by 4 ...	...	...	...	1.48	2.04	1.74	1.81
	...	...	...	5.92	9.92	6.96	7.24
Points { For time since Calving	...	...	...	12.0	1.1	—	10.4
{ For weight of Milk (lbs.)	...	...	...	27.9	48.1	36.8	34.5
{ For weight of Fat (lbs. × 20)	...	...	...	31.8	43.2	42.4	32.4
{ For weight of Solids other than Fat	...	...	...	10.4	18.1	13.4	12.5
{ (lbs. × 4) ...	...	...	...	82.1	110.5	92.6	89.8
Total ...	...	...	...	—	—	—	—
Deductions	...	...	...	82.1	110.5	92.6	89.8
Points gained...	...	...	...	—	—	—	—
Remarks and Awards ...	...	...	...	2nd Prize.	Reservc.	—	Highly commended.

CLASS 11.—GUERNSEY COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1916)—Continued.

Number ...	...	...	...	208 Lady's Maid and of Ville au Rat	209 Rocksblumy Charlotte	211 Engaw Pausy	213 Lysamore Prunelle 2nd
Name ...	...	...	...	...	...	...	...
Born ...	...	...	...	April 3, 1915.	Nov. 17, 1913.	April 28, 1913.	May 30, 1916.
Number of Calves ...	...	...	...	4	7	151	—
Last Calved ...	...	...	...	Sept. 25.	Aug. 21.	May 19.	—
Days since Calving ...	...	...	...	22	57	151	—
Live weight, in lbs. ...	...	...	...	1,060	940	1,107	1,172
Weight of Milk, 1st day ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	...	...	31-0 25-5	16-4 12-6	19-3 15-0	19-1 16-2
Total ...	...	...	...	31-6 27-2	15-5 13-9	18-0 16-5	20-0 17-3
Average ...	...	...	...	62-6 52-7	31-9 26-5	37-3 31-5	39-1 33-5
Percentage { Fat ...	...	...	...	31-3 26-3	15-9 13-2	18-6 15-7	19-5 16-7
Composition of { Solids other than Fat	...	...	...	3-63 4-24	8-70 4-45	4-90 5-51	4-66 5-14
the Milk. { Total Solids	...	...	...	9-31 9-18	9-18 9-11	9-42 9-49	9-68 9-36
Actual weight of Fat, in lbs. ...	...	...	...	12-94 13-42	12-88 13-56	14-32 15-00	14-34 14-50
Calculation of Points multiply by 20...	...	...	...	1-14 1-12	59 59	91 865	91 86
Actual weight of Solids other than Fat, in lbs.	...	...	...	22-8 22-4	11-8 11-8	18-20 17-3	18-2 17-2
Calculation of Points multiply by 4 ...	...	...	...	2-92 2-42	1-46 1-2	1-75 1-48	1-90 1-56
Points { For time since Calving	...	...	...	11-68 9-68	5-84 4-8	7-0 5-92	7-6 6-24
{ For weight of Milk (lbs.) ...	...	...	...	—	1-7	11-1	—
{ For weight of Fat (lbs. × 20)	...	...	...	57-6	29-1	34-3	36-2
{ For weight of Solids other than Fat	...	...	...	45-2	23-6	35-5	35-4
(lbs. × 4) ...	...	...	...	21-3	10-6	12-9	13-8
Total ...	...	...	...	124-1	65-0	93-8	85-4
Deductions ...	...	...	...	—	—	—	—
Points gained...	...	...	...	124-1	65-0	93-8	85-4
Remarks and Awards ...	...	...	...	1st Prize.		3rd Prize.	Highly commended.

CLASS 12.—GUERNSEY COW (BORN AFTER 1ST AUGUST 1916 AND PREVIOUS TO 1ST AUGUST 1918).

CLASS 12.—GUERNSEY COW (DOL. 1917)

Number ... Name ...	...	...	...	...	215 Latter of Goodration (with)	218 Vena of the Vaxcheletis	219 Middled dr. Hernand	220 Le Rules Sarah.
Born ...	...	...	...	...	April 10, 1917.	Jan. 25, 1918.	Nov. 6, 1917.	Mar. 14, 1918.
Number of Calves ...	...	...	...	...	3 July 18.	2 Sept. 17	— May 22.	2 Aug. 18.
Last Calved ...	...	...	...	...	91	30	148	60
Days since Calving ...	...	...	...	...	966	826	936	1,020
Live weight, in lbs. ...	...	...	...	...
Weight of Milk, 1st day	...	...	...	...	Morn	Morn	Morn	Morn
Weight of Milk, 2nd day	...	...	...	...	Even	Even	Even	Even
Total ...	...	...	...	...	9.1	15.1	15.6	15.5
Average ...	...	...	...	...	8.1	11.1	8.9	11.9
Percentage { Fat ...	...	...	...	...	7.1	14.0	14.5	14.1
Composition of { Solids other than Fat	...	...	...	...	8.0	12.6	20.0	12.6
the Milk. { Total Solids	...	...	...	...	16.2	23.7	30.1	24.5
Actual weight of Fat, in lbs. ...	...	...	...	...	8.1	11.8	15.0	14.8
Calculation of Points multiply by 20...	...	...	...	...	3.12	4.54	5.40	4.77
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	8.56	9.54	9.52	8.87
Calculation of Points multiply by 4 ...	...	...	...	...	11.08	14.08	14.92	13.64
Points { For time since Calving For weight of Milk (lbs.) For weight of Fat (lbs. × 20) For weight of Solids other than Fat (lbs. × 4)	...	...	...	...	254	535	81	71
	...	...	...	...	5.08	10.7	16.2	14.2
	...	...	...	...	695	1.12	1.43	1.3
	...	...	...	...	2.78	4.48	5.72	5.2
Total ...	...	...	...	...	5.1		10.8	2.0
Deductions ...	...	...	...	...	16.1	26.3	25.0	27.0
Points gained...	...	...	...	...	12.4	24.7	26.6	28.4
Remarks and Awards ...	...	...	...	...	5.6	10.0	9.5	9.6
	...	...	...	...	39.2	61.0	71.9	67.0
	...	...	...	...	39.2	61.0	71.9	67.0
	...	...	...	...			Reserve.	

CLASS 12.—GUERNSEY COWS (BORN AFTER 1ST AUGUST, 1916, AND PREVIOUS TO 1ST AUGUST, 1918)—Continued.

Number ...	...	...	...	...	221 Borne-Lane Beauty 2nd	222 Ramondus 32nd.	223 Wadland's Ruby.	224 Dorothy of Breda 2nd
Name ...	...	...	...	...	Sept. 2, 1917	Jan. 7, 1917.	Aug. 8, 1917.	Jan. 26, 1917.
Born ...	...	...	...	...	May 25.	June 4.	Sept. 13.	Oct. 4.
Number of Calves	...	...	...	...	145	135	34	13
Last Calved ...	...	...	...	...	882	868	740	837
Days since Calving	...	...	...	...	Morn	Morn	Morn	Morn
Live weight, in lbs.	...	...	...	...	Even	Even	Even	Even
Weight of Milk, 1st day	...	...	...	...	17-2	13-6	15-4	21-0
Weight of Milk, 2nd day	...	...	...	...	20-4	15-0	14-8	20-8
Total	...	...	...	...	37-6	28-6	30-2	41-8
Average ...	...	...	...	...	18-8	14-3	15-1	20-9
Percentage { Fat ...	...	...	...	...	4-19	5-10	3-94	4-48
Composition of { Solids other than Fat	...	...	...	...	9-65	8-38	9-28	9-62
the Milk. { Total Solids	...	...	...	...	13-84	13-48	13-22	14-10
Actual weight of Fat, in lbs. ...	...	...	...	...	-79	-73	-595	-94
Calculation of Points multiply by 20...	...	...	...	...	15-8	14-6	11-9	18-8
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	1-82	1-2	1-40	2-02
Calculation of Points multiply by 4 ...	...	...	...	...	7-28	4-8	5-6	8-08
Points { For time since Calving For weight of Milk (lbs.) For weight of Fat (lbs. × 20) For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	10-5	9-5	—	—
	...	...	...	...	33-1	29-5	30-0	36-9
	...	...	...	...	30-4	30-4	27-2	33-1
	...	...	...	...	12-1	10-8	11-0	14-2
Total	...	...	...	...	86-1	80-2	68-2	84-2
Deductions	...	...	...	...	—	—	—	—
Points gained...	...	...	...	...	76-1	80-2	68-2	84-2
Remarks and Awards ...	...	...	...	...	3rd Prize.	2nd Prize.	1st Prize.	1st Prize.

CLASS 13.—GUERNSEY HELFERS (BORN ON OR AFTER 1ST AUGUST, 1918).

Number ...	...	...	...	225 Wickham Warbler.	227 Fanny of Tregoning.	228 Valencia Lavender.	230 Lynchmere Rosy.
Name ...	...	...	...	April 14, 1919.	Mar. 7, 1919.	June 17, 1919.	Aug. 12, 1918.
Born ...	...	...	...	Aug. 4.	June 7.	Aug. 10.	Mar. 20.
Number of Calves ...	...	...	...	74	132	68	211
Last Calved ...	...	...	...	844	763	876	944
Days since Calving ...	...	...	...	Morn	Morn	Morn	Morn
Live weight, in lbs. ...	...	...	...	Even	Even	Even	Even
Weight of Milk, 1st day ...	...	...	...	15-0	12-9	13-3	16-3
Weight of Milk, 2nd day ...	...	...	...	15-6	13-8	13-2	15-8
Total ...	...	...	...	30-6	26-7	26-5	32-1
Average ...	...	...	...	15-3	13-3	13-2	16-0
Percentage { Fat ...	...	...	...	4-34	5-16	3-90	5-57
Composition of { Solids other than Fat	...	...	...	9-46	9-48	9-42	9-43
the Milk. { Total Solids	...	...	...	13-80	14-64	13-32	15-00
Actual weight of Fat, in lbs. ...	...	...	...	-66	-59	-51-5	-89
Calculation of Points multiply by 20...	...	...	...	13-2	11-8	10-3	17-8
Actual weight of Solids other than Fat, in lbs.	...	...	...	1-45	1-26	1-25	1-51
Calculation of Points multiply by 4 ...	...	...	...	5-8	5-04	5-0	6-04
Points { For time since Calving	...	...	...	3-4	9-2	2-8	12-0
{ For weight of Milk (lbs.)	...	...	...	27-1	24-6	24-3	28-0
{ For weight of Fat (lbs. × 20)	...	...	...	25-0	25-6	21-0	33-3
{ For weight of Solids other than Fat	...	...	...	10-3	9-4	9-1	10-4
(lbs. × 4) ...	...	...	...	65-8	68-8	57-2	83-7
Total ...	...	...	...	65-8	68-8	57-2	83-7
Deductions ...	...	...	...	...	...	...	...
Points gained...	...	...	...	...	...	...	...
Remarks and Awards ...	...	...	...	Reserve.	3rd Prize.	Highly commended.	1st Prize.

CLASS 13.—GUERNSEY HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1918)—Continued.

Number ...	...	...	...	...	...	231 Jenny Malpas.	232 Pl. motto of Donnellan.	234 Tolworth Lassie.
Name ...	...	...	...	...	...	Jan. 1, 1919.	Mar. 24, 1919.	Dec. 10, 1918.
Born ...	...	...	...	...	...	May 27.	Aug. 13.	Sept. 20.
Number of Calves	...	...	...	...	...	143	65	27
Last Calved ...	...	...	...	...	...	844	856	948
Days since Calving	...	...	...	...	...	Morn	Morn	Morn
Live weight, in lbs.	...	...	...	...	...	Even	Even	Even
Weight of Milk, 1st day	...	...	...	...	...	12.4	13.5	15.7
Weight of Milk, 2nd day	...	...	...	...	...	10.5	14.4	12.8
Total	...	...	...	...	...	22.9	27.9	16.2
Average ...	...	...	...	...	...	11.4	13.9	31.9
Percentage { Fat ...	...	...	...	...	...	6.33	5.82	15.9
Composition of { Solids other than Fat	...	...	...	...	...	9.85	9.22	5.35
the Milk. { Total Solids	...	...	...	...	...	16.18	15.04	9.13
Actual weight of Fat, in lbs.	...	...	...	...	...	.72	.81	13.96
Calculation of Points multiply by 20...	...	...	...	...	...	14.4	16.2	.745
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	1.13	1.28	14.9
Calculation of Points multiply by 4 ...	...	...	...	...	...	4.52	5.12	14.4
Points { For time since Calving	...	...	...	...	...	10.3	2.5	—
	...	...	...	...	...	19.3	24.3	29.0
	...	...	...	...	...	24.0	28.2	29.3
	...	...	...	...	...	7.5	9.0	10.8
Total ...	...	...	...	...	...	61.1	64.0	69.1
Deductions ...	...	...	...	...	...	—	—	—
Points gained...	...	...	...	...	...	61.1	64.0	69.1
Remarks and Awards ...	...	...	...	...	...	Highly commended.	Highly commended.	2nd Prize.

CLASS 15.—RED POLL COWS (BORN AFTER 1ST AUGUST, 1916, AND PREVIOUS TO 1ST AUGUST, 1918).

Number ...	...	...	...	...	248	250	251	252
Name ...	...	...	...	...	Gresenhall Margate.	Kilton Fryer.	Tuesmoad Jennifer	Dallinghoo Ruby 3rd.
Born ...	...	...	...	...	Oct. 24, 1917.	Sept. 17, 1917.	July 15, 1917.	Feb. 8, 1917.
Number of Calves ...	...	...	...	...	—	1	1	2
Last Calved ...	...	...	...	...	Aug. 8.	Sept. 18.	Sept. 19.	July 20.
Days since Calving ...	...	...	...	...	70	29	28	89
Live weight, in lbs. ...	...	...	...	...	1,008	1,050	1,132	923
Weight of Milk, 1st day ...	...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	...	...	...	19.3 14.8	31.5 26.1	17.5 18.1	19.4 13.3
Total ...	...	...	...	...	19.3 16.8	32.0 26.5	16.6 16.3	16.9 12.8
Average ...	...	...	...	...	38.6 31.6	63.5 52.6	34.1 34.4	30.3 26.1
Percentage { Fat ...	...	...	...	...	19.3 15.8	31.7 26.3	17.0 17.2	18.1 13.0
Composition { Solids other than Fat	...	...	...	...	5.90 5.07	4.08 4.99	4.70 5.44	4.52 3.55
the Milk. { Total Solids ...	...	...	...	...	9.24 8.77	9.40 9.01	9.00 9.38	9.22 8.95
Actual weight of Fat, in lbs. ...	...	...	...	...	15.14 13.84	13.48 14.00	13.70 14.82	13.74 12.50
Calculation of Points multiply by 20...	...	...	...	...	1.14 .8	1.30 1.31	.80 .94	.82 .46
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	...	22.8 16.0	26.0 26.2	16.0 18.8	16.4 9.2
Calculation of Points multiply by 4 ...	...	...	...	...	1.78 1.39	2.98 2.37	1.53 1.61	1.66 1.16
Points { For time since Calving	...	...	...	...	7.12 5.56	11.92 9.48	6.12 6.44	6.64 4.64
{ For weight of Milk (lbs.) ...	...	...	...	...	3.0	—	—	—
{ For weight of Fat (lbs. × 20) ...	...	...	...	...	35.1	58.0	34.2	31.1
{ For weight of Solids other than Fat	...	...	...	...	38.8	52.2	34.8	25.6
(lbs. × 4) ...	...	...	...	...	12.7	21.4	12.6	11.28
Total ...	...	...	...	...	89.6	131.6	81.6	68.0
Deductions ...	...	...	...	...	—	—	—	—
Points gained...	...	...	...	...	89.6	131.6	81.6	68.0
Remarks and Awards ...	...	...	...	...	1st Prize.	—	—	—

CLASS 15.—RED POLL COWS (BORN AFTER 1ST AUGUST, 1916, AND PREVIOUS TO 1ST AUGUST, 1918)—Continued.

Number ... Name ...	...	...	...	...	254 Harsfield Belle.	255 Ashmore Pence.		256 Meddler Mayflower.		257 Kitchener's Daffodil and
						Jan. 7, 1917.	Sept. 1. 46	Mar. 11, 1918.	Aug. 27. 51	
Born ...	...	...	...	...	Sept. 4, 1916.	Aug. 13. 65	1,162	1,188	1,246	Mar. 29, 1917.
Number of Calves	...	...	...	...	2	3	3	2	—	—
Last Calved	...	...	...	...	Sept. 25. 22	Aug. 13. 65	1,162	1,188	1,246	Aug. 27. 51
Days since Calving	...	...	...	...	1,081	1,081	1,081	1,188	1,246	1,246
Live weight, in lbs.	...	...	...	...	Morn	Even	Morn	Even	Morn	Even
Weight of Milk, 1st day	...	...	...	...	26-7	22-8	22-9	22-8	23-0	16-2
Weight of Milk, 2nd day	...	...	...	...	27-4	21-5	22-8	24-4	22-9	17-0
Total	...	...	...	...	54-1	44-3	45-7	47-2	45-9	33-2
Average	...	...	...	...	27-0	22-1	22-8	23-6	22-9	16-6
Percentage of Fat ...	...	...	...	...	4-06	4-17	4-15	3-74	4-55	4-82
Composition of Solids other than Fat	...	...	...	...	9-42	10-05	8-91	9-06	8-23	8-48
the Milk. Total Solids	...	...	...	...	13-48	14-22	13-06	12-80	12-78	13-30
Actual weight of Fat, in lbs. ...	...	...	...	...	1-10	-92	-95	-64	1-04	-8
Calculation of Points multiply by 20...	...	...	...	...	22-0	18-4	19-0	12-8	20-8	16-0
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	2-54	2-22	2-02	1-55	1-89	1-4
Calculation of Points multiply by 4 ...	...	...	...	...	10-16	8-88	8-08	6-2	7-56	5-6
Points { For time since Calving For weight of Milk (lbs.) For weight of Fat (lbs. × 20) For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	—	—	2-5	—	—	—
	...	...	...	...	49-1	40-0	40-0	51-1	39-5	1-1
	...	...	...	...	40-4	31-8	31-8	54-8	36-8	—
	...	...	...	...	19-0	14-3	14-3	19-3	13-2	—
Total	...	...	...	...	108-5	88-6	88-6	125-8	90-6	—
Deductions	...	...	...	...	—	—	—	—	20-0	—
Points gained...	...	...	...	...	108-5	88-6	88-6	125-8	70-6	—
Remarks and Awards ...	...	...	...	...	3rd Prize.	—	—	2nd Prize.	—	—

CLASS 15.—RED POLL COWS (BORN AFTER 1ST AUGUST, 1916, AND PREVIOUS TO 1ST AUGUST, 1918)—Continued.

Number ...	...	...	...	...	...	258
Name ...	...	...	...	...	...	Gresenhall Lavender
Born ...	...	...	...	...	...	Sept. 23, 1916.
Number of Calves	...	...	...	...	...	—
Last Calved	...	...	...	...	...	Aug. 7.
Days since Calving	...	...	...	...	...	71
Live weight, in lbs.	...	...	...	...	...	1,176
Weight of Milk, 1st day	...	...	...	...	...	Morn
Weight of Milk, 2nd day	...	...	...	...	...	Even
Total	...	...	...	...	...	23.1 19.0
Average	...	...	...	...	...	21.3 16.9
Percentage { Fat ...	...	...	...	...	...	44.4 35.9
Composition of { Solids other than Fat	...	...	...	...	...	22.2 17.9
the Milk. { Total Solids	...	...	...	...	...	3.83 5.18
Actual weight of Fat, in lbs. ...	...	...	...	...	...	8.57 8.52
Calculation of Points multiply by 20...	...	...	...	...	...	12.40 13.70
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	.85 .93
Calculation of Points multiply by 4 ...	...	...	...	...	...	17.0 18.6
{ For time since Calving	...	...	...	...	...	1.90 1.53
{ For weight of Milk (lbs.)	...	...	...	...	...	7.6 6.12
{ For weight of Fat (lbs. × 20)	...	...	...	...	...	3.1
{ For weight of Solids other than Fat	...	...	...	...	...	40.1
(lbs. × 4) ...	...	...	...	...	...	35.6
Total ...	...	...	...	...	...	13.7
Deductions	...	...	...	...	...	92.5
Points gained...	...	...	...	...	...	—
Remarks and Awards ...	...	...	...	...	...	92.5
	...	...	...	...	...	Reserve.

CLASS 16.—RED POLL HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1918).

Number ...	...	...	...	...	260	262	263	264
Name ...	...	...	...	...	Frankingham Mix.	Ashmoor Viola.	Spalding Pearl.	Basilton Fairy.
Born ...	...	...	...	...	Aug. 9, 1918.	Mar. 15, 1919.	April 2, 1919.	Dec. 25, 1918.
Number of Calves ...	...	...	...	...	—	—	1	1
Last Calved ...	...	...	...	...	Sept. 1.	Sept. 5.	Aug. 10.	Aug. 23.
Days since Calving ...	...	...	...	...	46	42	68	55
Live weight, in lbs.	...	...	...	...	803	1,032	1,003	1,006
Weight of Milk, 1st day	...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	...	12.5 11.2	15.3 13.8	20.0 16.5	17.3 17.5
Total	...	...	...	...	14.7 12.1	17.5 15.3	19.1 15.5	18.4 16.1
Average ...	...	...	...	...	27.2 23.3	32.8 29.1	39.1 32.0	35.7 33.6
Percentage { Fat ...	...	...	...	...	13.6 11.6	16.4 14.5	19.5 16.0	17.8 16.8
Composition of { Solids other than Fat	...	...	...	...	4.97 4.87	5.32 5.37	4.47 3.96	2.49 4.04
the Milk. { Total Solids	...	...	...	...	9.51 9.21	9.12 9.09	9.25 8.80	9.39 9.10
Actual weight of Fat, in lbs.	...	...	...	...	14.48 14.08	14.44 14.46	13.72 12.76	11.88 13.14
Calculation of Points multiply by 20...	...	...	...	...	.675 .565	.87 .775	.87 .635	.445 .68
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	13.5 11.3	17.4 15.5	17.4 12.7	8.9 13.6
Calculation of Points multiply by 4 ...	...	...	...	...	1.29 1.07	1.50 1.32	1.80 1.4	1.67 1.54
For time since Calving	...	...	...	...	5.16 4.28	6.0 5.28	7.2 5.6	6.68 6.16
For weight of Milk (lbs.)	...	...	...	...	.6	.2	2.8	1.5
For weight of Fat (lbs. × 20)	...	...	...	...	25.2	30.9	35.5	34.6
For weight of Solids other than Fat	...	...	...	...	24.8	32.9	30.1	22.5
(lbs. × 4)	...	...	...	...	9.4	11.3	12.8	12.8
Total ...	...	...	...	...	60.0	75.3	81.2	71.4
Deductions ...	...	...	...	...	—	—	—	10.0
Points gained...	...	...	...	...	60.0	75.3	81.2	61.4
Remarks and Awards ...	...	...	...	...	3rd Prize.	1st Prize.		

CLASS 16.—RED POLL HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1918)—Continued.

Number ..	...	...	268	269	270	273
Name ..	...	...	Aslmoor Sunbeam.	Aslmoor Winter.	Tending Vera 18th.	Sudbourne Esmeralda
Born ...	...	...	Sept. 6, 1918.	Jan. 1, 1919.	May 1, 1919.	Mar. 22, 1919.
Number of Calves ...	...	...	2	—	—	—
Last Calved ...	...	...	Aug. 24.	Aug. 28.	Oct. 2.	Sept. 1.
Days since Calving ...	...	...	54	50	15	46
Live weight, in lbs. ...	...	...	1,133	1,058	1,090	996
Weight of Milk, 1st day ...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	...	18-0 15-8	18-0 13-7	20-7 16-3	13-7 13-8
Total ...	...	...	37-6 32-1	35-0 27-8	41-3 31-9	28-0 26-5
Average ...	...	...	18-8 16-0	17-5 13-9	20-6 15-9	14-0 13-2
Percentage { Fat ...	...	...	3-30 3-95	3-36 3-73	3-98 4-62	3-39 4-18
Composition of { Solids other than Fat	...	...	9-50 9-35	9-24 9-03	8-74 8-66	9-19 8-60
the Milk. { Total Solids	...	...	12-80 13-30	12-60 12-76	12-72 13-28	12-58 12-78
Actual weight of Fat, in lbs. ...	...	...	-62 -63	-59 -52	-82 -735	-475 -55
Calculation of Points multiply by 20 ...	...	...	12-4 12-6	11-8 10-4	16-4 14-7	9-5 11-0
Actual weight of Solids other than Fat, in lbs.	...	...	1-78 1-5	1-62 1-25	1-80 1-38	1-29 1-13
Calculation of Points multiply by 4 ...	...	...	7-12 6-0	6-48 5-0	7-2 5-52	5-16 4-52
Points { For time since Calving	...	...	1-4	1-0	—	.6
	For weight of Milk (lbs.)	...	34-8	31-4	36-5	27-2
	For weight of Fat (lbs. × 20)	...	25-0	22-2	31-1	20-5
	For weight of Solids other than Fat (lbs. × 4)	...	13-1	11-5	12-7	9-7
Total ...	...	...	74-3	66-1	80-3	58-0
Deductions ...	...	...	—	—	—	—
Points gained ...	...	...	74-3	66-1	80-3	58-0
Remarks and Awards ...	...	...	Reserve.		2nd Prize.	

Class 17.—DEVON COWS.

Number ...	274	275	276	277
Name ...	Lady Ist.	Cherry 3rd.	Wynford Laburnam.	Melon.
Born ...	Feb. 27, 1913.	April 1, 1911.	Dec. 23, 1915.	1913.
Number of Calves ...	—	7	2	—
Last Calved ...	Sept. 26.	Sept. 13.	Sept. 16.	Sept. 26.
Days since Calving ...	21	34	31	21
Live weight, in lbs. ...	1,202	1,380	1,086	1,453
Weight of Milk, 1st day ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	26.1 22.6	28.0 18.4	22.5 16.9	23.2 24.8
Total ...	24.9 21.1	27.2 23.8	21.9 20.4	26.6 22.6
Average ...	51.0 43.7	55.2 42.2	44.4 37.3	49.8 47.4
Percentage of Fat ...	25.5 21.8	27.6 21.1	22.2 18.6	24.9 23.7
Composition of the Milk ...	4.01 4.65	4.78 4.12	6.08 5.84	4.95 6.11
Actual weight of Fat, in lbs. ...	9.11 8.67	9.02 9.06	9.00 9.16	9.03 9.23
Calculation of Points multiply by 20 ...	13.12 13.32	13.80 13.18	15.08 15.00	13.98 15.34
Actual weight of Solids other than Fat, in lbs. ...	1.02 1.02	1.32 .87	1.35 1.08	1.48 1.45
Calculation of Points multiply by 4 ...	20.4 20.4	26.4 17.4	27.0 21.6	29.6 29.0
Actual weight of Solids other than Fat, in lbs. ...	2.32 1.9	2.50 1.91	2.0 1.7	2.7 2.2
Calculation of Points multiply by 4 ...	9.28 7.6	10.0 7.64	8.0 6.8	10.8 8.8
Points { For time since Calving ...	—	—	—	—
For weight of Milk (lbs.) ...	47.3	48.7	40.8	48.6
For weight of Fat (lbs. × 20) ...	40.8	43.8	48.6	58.6
For weight of Solids other than Fat (lbs. × 4) ...	16.9	17.6	14.8	19.6
Total ...	105.0	110.1	104.2	126.8
Deductions ...	—	—	—	—
Points gained ...	105.0	110.1	104.2	126.8
Remarks and Awards ...	Reserve.	3rd Prize.	Highly Commended.	2nd Prize.

CLASS 17.—DEVON COWS - *Continued.*

Number ...	278	279	280	282
Name ...	Octroi.	Suffragette Ist.	Stratton Tottic 5th.	Chalmington Charm.
Born ...	Mar. 8, 1914.	Feb. 1, 1913.	Feb. 2, 1911.	1918.
Number of Calves ...	6	6	19	1
Last Calved ...	Sept. 5.	May 30.	Sept. 28.	Sept. 6.
Days since Calving ...	42	140	19	41
Live weight, in lbs. ...	1,413	1,353	1,237	988
Weight of Milk, 1st day ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	22-4 19-7	18-1 14-8	27-7 25-0	23-7 20-1
Total ...	23-0 20-7	18-3 14-6	29-4 24-5	24-0 21-0
Average ...	46-3 40-4	36-4 29-4	57-1 49-5	47-7 41-1
Percentage of Fat ...	23-1 20-2	18-2 14-7	28-5 24-7	23-8 20-5
Composition of Solids other than Fat ...	5-13 5-47	4-70 4-08	4-95 6-31	4-01 4-01
Total Solids ...	9-01 8-85	9-16 9-10	9-21 9-25	9-07 9-11
Actual weight of Fat, in lbs. ...	14-14 14-32	13-86 13-18	14-16 15-56	13-08 13-12
Calculation of Points multiply by 20 ...	1-18 1-1	-85 -60	1-42 1-56	-95 -82
Actual weight of Solids other than Fat, in lbs. ...	23-6 22-0	17-0 12-0	28-4 31-2	19-0 16-4
Calculation of Points multiply by 4 ...	2-09 1-79	1-67 1-34	2-64 2-28	2-16 1-87
Points ...	8-36 7-16	6-68 5-36	10-56 9-12	8-04 7-48
For time since Calving ...	.2	10-0	—	.1
For weight of Milk (lbs.) ...	43-3	32-9	53-2	44-3
For weight of Fat (lbs. × 20) ...	45-6	29-0	59-6	35-4
For weight of Solids other than Fat (lbs. × 4) ...	15-5	12-0	19-7	16-1
Total ...	104-6	83-9	132-5	95-9
Deductions ...	—	—	—	—
Points gained ...	104-6	83-9	132-5	95-9
Remarks and Awards ...	Highly Commended.		1st Prize.	Highly Commended.

CLASS 18.—SOUTH DEVON COWS.

Number ...	283	285	286	287
Name ...	Milkmald 2nd.	Fantongolun Buttercup	Milkmald 4th.	Netton Lily.
Born ...	Dec. 7, 1915.	Mar. 21, 1917.	May 7, 1912.	Mar. 1, 1914.
Number of Calves ...	—	3	7	4
Last Calved ...	Sept. 29.	Aug. 1.	May 24.	July 27.
Days since Calving ...	18	77	146	82
Live weight, in lbs. ...	1,768	1,501	1,574	1,748
Weight of Milk, 1st day ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	26.7 23.1	14.3 13.8	32.1 25.6	20.3 14.6
Total ...	27.6 26.4	14.3 15.7	31.2 28.6	18.3 15.2
Average ...	54.3 49.5	28.6 29.5	63.3 54.2	38.6 29.8
Percentage { Fat ...	27.1 24.7	14.3 14.7	31.6 27.1	19.3 14.9
Composition of { Solids other than Fat	4.28 5.20	4.54 5.78	4.41 4.73	5.83 5.71
the Milk. { Total Solids	9.42 9.08	9.22 9.40	8.93 8.93	8.97 9.15
Actual weight of Fat, in lbs. ...	13.70 14.28	13.76 15.18	13.34 13.66	14.80 14.86
Calculation of Points multiply by 20 ...	1.16 1.28	.65 .85	1.39 1.28	1.12 .85
Actual weight of Solids other than Fat, in lbs. ...	23.2 25.6	13.0 17.0	27.8 25.6	22.4 17.0
Calculation of Points multiply by 4 ...	2.56 2.24	1.32 1.38	2.82 2.42	1.74 1.37
Points { For time since Calving ...	10.24 8.96	5.28 5.52	11.28 9.68	6.96 5.48
{ For weight of Milk (lbs.) ...	—	3.7	10.6	4.2
{ For weight of Fat (lbs. × 20) ...	51.8	29.0	58.7	34.2
{ For weight of Solids other than Fat (lbs. × 4) ...	48.8	30.0	53.4	39.4
Total ...	19.2	10.8	20.96	12.4
Deductions ...	119.8	73.5	143.66	90.2
Points gained ...	119.8	73.5	143.66	90.2
Remarks and Awards ...	2nd Prize.		1st Prize.	

CLASS 18.—SOUTH DEVON COWS—Continued.

Number ...	...	...	...	...	288
Name ...	...	...	...	...	Daffodil.
Born ...	...	...	...	...	April 20, 1916.
Number of Calves ...	...	...	...	...	4
Last Calved ...	...	...	...	...	Aug. 17.
Days since Calving ...	...	...	...	...	61
Live weight, in lbs. ...	...	...	...	...	1,662
Weight of Milk, 1st day	...	...	...	...	Morn
Weight of Milk, 2nd day	...	...	...	...	Even
Total	...	...	...	...	20.6 17.9
Average ...	...	...	...	...	21.2 20.3
Percentage { Fat ...	...	...	...	...	41.8 38.2
Composition of { Solids other than Fat	...	...	...	...	20.9 19.1
the Milk. { Total Solids	...	...	...	...	4.69 4.90
Actual weight of Fat, in lbs. ...	...	...	...	...	8.97 8.71
Calculation of Points multiply by 20...	...	...	...	...	13.66 13.70
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	-98 -.955
Calculation of Points multiply by 4 ...	...	...	...	...	19.6 19.1
Points { For time since Calving	...	...	...	...	1.87 1.67
{ For weight of Milk (lbs.)	...	...	...	...	7.48 6.68
{ For weight of Fat (lbs. × 20)	...	...	...	...	2.1
{ For weight of Solids other than Fat	...	...	...	...	40.0
(lbs. × 4) ...	...	...	...	...	38.7
Total ...	...	...	...	...	14.2
Deductions ...	...	...	...	...	95.0
Points gained...	...	...	...	...	—
Remarks and Awards ...	...	...	...	...	95.0

CLASS 20.—KERRY COWS.

Number ... Name ...	...	...	...	...	...	293 Buckhurst Bubbles, July 6, 1915. 4 Aug. 31. 47 866	295 Buckhurst Peaceful, 2nd. Sept. 19, 1912. 5 39 997	296 Buckhurst Pearl, Aug. 28, 1912. 7 July 21. 88 989	297 Duv Time. April 2, 1912. 6 May 6 165 928
						Morn	Morn	Morn	Morn
Born	...	...	...	...	...	Even	Even	Even	Even
Number of Calves	...	...	...	...	...	14-9	25-6	15-5	15-1
Last Calved	...	...	...	...	...	11-5	20-3	10-4	8-4
Days since Calving	...	...	...	...	...	11-7	20-1	10-2	10-6
Live weight, in lbs.	...	...	...	...	...	23-2	40-4	20-6	9-5
Weight of Milk, 1st day	...	...	...	...	...	29-0	49-4	29-0	25-7
Weight of Milk, 2nd day	...	...	...	...	...	14-5	24-7	14-5	12-8
Total	...	...	...	...	...	5-08	4-87	6-34	8-9
Average	...	...	...	...	...	9-26	9-06	9-36	3-66
Percentage of Fat ...	...	...	...	...	...	14-00	13-78	16-00	6-05
Composition of Solids other than Fat	...	...	...	...	...	5-9	9-98	6-65	9-04
the Milk. { Total Solids	...	...	...	...	...	13-8	18-6	19-20	9-15
Actual weight of Fat, in lbs. ...	...	...	...	...	...	1-34	1-80	1-36	12-70
Calculation of Points multiply by 20...	...	...	...	...	...	5-36	8-96	5-44	15-20
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	70	44-9	4-80	4-47
Calculation of Points multiply by 4 ...	...	...	...	...	...	26-10	38-2	24-80	54
Points { For time since Calving	...	...	...	...	...	25-60	16-1	32-20	8-40
For weight of Milk (lbs.) ...	...	...	...	...	...	9-68	99-2	9-12	12-00
For weight of Fat (lbs. × 20)	...	...	...	...	...	62-08	—	70-92	21-70
For weight of Solids other than Fat	...	...	...	...	...	62-08	99-2	—	20-20
(lbs. × 4) ...	...	...	...	...	...	—	—	—	7-88
Total ...	...	...	...	...	...	—	—	—	61-78
Deductions	...	...	...	...	...	—	—	—	—
Points gained...	...	...	...	...	...	62-08	99-2	70-92	61-78
Remarks and Awards ...	...	...	...	...	...	Reserve.	—	—	—

Class 20.—KERRY COWS—Continued.

Number ...	...	...	...	298	302	303	304
Name ...	...	...	...	Gort Curley 4th.	Coquet Hebe.	Coquet Eve.	Minley Whimie.
Born ...	...	...	...	Jan. 16, 1913.	Feb. 17, 1918.	May 2, 1915.	Oct. 22, 1917.
Number of Calves	...	...	...	5	—	—	1
Last Calved	...	...	...	July 2.	June 14.	July 29.	Aug. 31.
Days since Calving	...	...	...	107	156	80	47
Live weight, in lbs.	...	...	...	864	788	973	885
Weight of Milk, 1st day	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	21.1 15.6	12.2 10.2	15.8 12.1	17.0 14.1
Total	...	...	...	14.8 11.6	13.7 9.7	16.6 12.1	18.1 14.8
Average	...	...	...	35.9 27.2	25.9 19.9	32.4 24.2	35.1 28.9
Percentage { Fat ...	...	...	...	17.9 13.6	12.9 9.9	16.2 12.1	17.5 14.4
Composition { Solids other than Fat	...	...	...	3.17 4.19	4.32 4.81	4.25 4.61	4.68 4.42
the Milk. { Total Solids	...	...	...	8.39 8.53	9.70 9.69	8.91 8.79	9.30 9.30
Actual weight of Fat, in lbs. ...	...	...	...	11.56 12.72	14.02 14.50	13.16 13.40	13.98 13.72
Calculation of Points multiply by 20...	...	...	...	.57 .57	.56 .48	.69 .56	.82 .64
Actual weight of Solids other than Fat, in lbs.	...	...	...	11.4 11.4	11.2 9.6	13.7 11.2	16.4 12.8
Calculation of Points multiply by 4 ...	...	...	...	1.50 1.16	1.25 .96	1.44 1.06	1.62 1.34
Points { For time since Calving	...	...	...	6.00 4.64	5.00 3.84	5.76 4.24	6.48 5.36
{ For weight of Milk (lbs.)	...	...	...	6.70	11.60	4.0	.7
{ For weight of Fat (lbs. × 20)	...	...	...	31.50	22.80	28.3	31.9
{ For weight of Solids other than Fat	...	...	...	22.80	20.80	24.9	29.2
(lbs. × 4) ...	...	...	...	10.64	8.84	10.0	11.8
Total ...	...	...	...	71.64	64.04	67.2	73.6
Deductions	...	...	...	10.00	—	—	—
Points gained...	...	...	...	61.64	64.04	67.2	73.6
Remarks and Awards ...	...	...	...	...	...	...	...

CLASS 20.—KERRY COWS.—Continued.

Number ...	...	...	...	305	307	309	310
Name ...	...	...	...	Windlands Buttermilk	Flora of Carton.	Wyresdale Clover	Gort Countess, 9th.
Born ...	...	...	...	1012.	Mar. 23, 1917.	1908.	Feb. 21, 1916.
Number of Calves ...	...	...	...	—	—	—	—
Last Calved ...	...	...	...	Aug. 20.	Aug. 31.	May 13.	July 11.
Days since Calving ...	...	...	...	58	47	157	98
Live weight, in lbs. ...	...	...	...	861	842	852	878
Weight of Milk, 1st day ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	...	...	24.7 21.1	24.7 19.2	23.5 14.4	13.7 10.7
Total ...	...	...	...	26.7 21.5	23.7 18.5	18.5 15.3	15.0 10.4
Average ...	...	...	...	51.4 42.6	48.4 37.7	42.0 29.7	28.7 21.1
Percentage { Fat ...	...	...	...	25.7 21.3	24.2 18.8	21.0 14.8	14.3 10.5
Composition of { Solids other than Fat	...	...	...	3.95 5.23	4.33 5.78	5.15 5.34	4.76 5.40
the Milk. { Total Solids	...	...	...	8.85 8.69	8.93 9.10	9.07 8.76	8.94 9.02
Actual weight of Fat, in lbs. ...	...	...	...	12.80 13.92	13.26 14.88	14.22 14.10	13.70 14.42
Calculation of Points multiply by 20...	...	...	...	1.02 1.11	1.05 1.07	1.08 .79	.68 .57
Actual weight of Solids other than Fat, in lbs.	...	...	...	20.4 22.2	21.0 21.4	21.6 15.8	13.6 11.4
Calculation of Points multiply by 4 ...	...	...	...	2.28 1.85	2.16 1.71	1.90 1.29	1.28 .94
{ For time since Calving ...	...	...	...	9.12 7.40	8.64 6.84	7.6 5.16	5.12 3.76
{ For weight of Milk (lbs.) ...	...	...	...	1.8	.7	11.7	5.80
{ For weight of Fat (lbs. × 20) ...	...	...	...	47.0	43.0	35.8	24.80
{ For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	42.6	42.4	37.4	25.00
Total ...	...	...	...	16.5	15.5	12.7	8.88
Deductions ...	...	...	...	107.9	101.6	97.6	64.48
Points gained... ..	...	...	...	107.9	101.6	97.6	64.48
Remarks and Awards ...	...	...	...	1st Prize. English Kerry and Dexter Society Challenge Cup	2nd Prize. Reserve for English Kerry and Dexter Society Challenge Cup	Very Highly Commended.	

CLASS 20.—KERRY COWS—Continued.

Number Name	...	...	...	...	...	...	311 Castle Lough Hannah April 18, 1917.	312 Walton Lanky 2nd. July 16, 1912
Born	...	...	...	...	...	...	—	—
Number of Calves	...	...	...	...	...	...	May 31. 139	Aug. 28. 50
Last Calved	...	...	...	...	...	...	792	884
Days since Calving	...	...	...	...	...	...	Morn	Morn
Live weight, in lbs.	...	...	...	...	...	...	Even	Even
Weight of Milk, 1st day	...	...	...	...	...	...	9-8	26-2
Weight of Milk, 2nd day	...	...	...	...	...	...	7-1	16-5
Total	...	...	...	...	...	...	8-5	20-6
Average	...	...	...	...	...	...	13-5	46-8
Percentage	...	...	...	...	...	...	6-7	35-7
Composition of	...	...	...	...	...	...	Morn	17-8
the Milk.	...	...	...	...	...	...	Even	4-69
Actual weight of Fat, in lbs.	...	...	...	...	...	...	9-8	8-86
Calculation of Points multiply by 20...	...	...	...	...	...	...	8-91	13-00
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	...	14-22	13-52
Calculation of Points multiply by 4 ...	...	...	...	...	...	...	40	84
Points	...	...	...	...	...	...	7-0	16-8
For time since Calving	...	...	...	...	...	...	81	1-57
For weight of Milk (lbs.)	...	...	...	...	...	...	2-40	8-32
For weight of Fat (lbs. × 20)	...	...	...	...	...	...	9-90	1-0
For weight of Solids other than Fat (lbs. × 4)	...	...	...	...	...	...	15-80	41-2
Total	...	...	...	...	...	...	15-00	36-2
Deductions	...	...	...	...	...	...	5-64	14-6
Points gained...	...	...	...	...	...	...	46-34	93-0
Remarks and Awards	...	...	...	...	...	...	46-34	93-0
	...	...	...	...	...	...		Highly Commended.

CLASS 21.—KERRY HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1918)—Continued.

Number ...	...	...	...	...	...	320	322
Name ...	...	...	...	...	...	Vaddy Owenreagh.	Rosebud of Carton.
Born ...	...	...	...	...	...	April 13, 1919.	Mar. 10, 1919.
Number of Calves ...	...	...	...	...	...	Sept. 26.	Aug. 19.
Last Calved ...	...	...	...	...	...	21	59
Days since Calving ...	...	...	...	...	...	840	704
Live weight, in lbs. ...	...	...	...	...	...	Morn	Morn
						Even	Even
Weight of Milk, 1st day ...	...	...	...	...	...	11.2	12.0
Weight of Milk, 2nd day ...	...	...	...	...	...	10.3	12.3
Total ...	...	...	...	...	...	12.0	13.9
Average ...	...	...	...	...	...	10.4	12.6
						23.2	25.9
						20.7	24.9
						11.6	12.9
						10.3	12.4
Percentage of Fat ...	...	...	...	...	...	5.40	5.18
Composition of Solids other than Fat ...	...	...	...	...	...	9.52	9.48
the Milk. Total Solids ...	...	...	...	...	...	14.92	14.66
Actual weight of Fat, in lbs. ...	...	...	...	...	...	14.76	14.56
Calculation of Points multiply by 20 ...	...	...	...	...	...	.67	.66
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	13.4	13.2
Calculation of Points multiply by 4 ...	...	...	...	...	...	1.21	1.14
	...	...	...	...	...	4.84	4.56
For time since Calving ...	...	...	...	...	...	1.9	
For weight of Milk (lbs.) ...	...	...	...	...	...	21.90	25.3
For weight of Fat (lbs. × 20) ...	...	...	...	...	...	23.70	26.6
For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	...	8.24	9.4
Total ...	...	...	...	...	...	53.84	63.2
Deductions ...	...	...	...	...	...	—	—
Points gained ...	...	...	...	...	...	53.84	63.2
Remarks and Awards ...	...	...	...	...	...	2nd Prize.	1st Prize.

CLASS 24.—BRITISH FRIESIAN COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1916).

Number ...	...	...	...	334	335	337	339
Name ...	...	...	...	Hedge's Dutch Gossip	Hedge's Fox and Queen	Hedge's (unperfected) Youngie first	Dorney Billah.
Born ...	...	...	...	July 15, 1916.	Nov. 13, 1913.	June 14, 1913.	Feb. 3, 1915.
Number of Calves ...	...	...	...	2	...	...	...
Last Calved ...	...	...	...	April 20,	Sept. 28,	Mar. 27,	June 22,
Days since Calving ...	...	...	...	180	19	204	117
Live weight, in lbs. ...	...	...	...	1,286	1,318	1,477	1,428
Weight of Milk, 1st day ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	...	...	34.3 27.0	45.9 35.2	35.2 26.1	25.9 10.3
Total ...	...	...	...	33.7 26.9	45.1 38.5	32.9 23.7	26.1 21.5
Average ...	...	...	...	68.0 53.9	91.0 73.7	68.1 49.8	52.0 40.8
Percentage ...	...	...	...	34.0 26.9	45.5 36.8	34.0 24.9	26.0 20.4
Composition of ...	...	...	...	3.96 3.87	3.84 4.10	4.05 3.84	4.72 4.47
the Milk. ...	...	...	...	8.76 8.67	8.20 8.18	8.75 8.50	9.14 9.41
Actual weight of Fat, in lbs. ...	...	...	...	12.72 12.54	12.04 12.28	12.80 12.34	13.86 13.88
Calculation of Points multiply by 20... Actual weight of Solids other than Fat, in lbs.	...	...	...	1.35 1.04	1.75 1.51	1.37 .96	1.25 .91
Calculation of Points multiply by 4 ...	...	...	...	27.00 20.8	35.00 30.2	27.4 19.2	25.0 18.2
Calculation of Points multiply by 4 ...	...	...	...	2.98 2.33	3.75 3.02	2.98 2.11	2.37 1.92
Points ...	...	...	...	11.92 9.32	14.88 12.08	11.92 8.44	9.48 7.68
For time since Calving ...	...	...	...	12.0	...	12.0	7.70
For weight of Milk (lbs.) ...	...	...	...	60.9	82.3	58.9	46.40
For weight of Fat (lbs. × 20) ...	...	...	...	47.8	65.2	46.6	43.20
For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	21.2	26.9	20.3	17.16
Total ...	...	...	...	141.9	174.4	137.8	114.46
Deductions ...	...	...	...	—	20.0	—	—
Points gained... Remarks and Awards ...	...	...	...	141.9	154.4	137.8	114.46
...	...	...	...	Reserve.	3rd Prize.	Very Highly Commended.	Highly Commended.

CLASS 24.—BRITISH FRIESIAN COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1916.)—Continued.

Number ...	342	343	344	348
Name ...	Brooklands Pride.	Colton Bram Lorna.	Colton Sunset, 2nd.	Felhampton Susan.
Born ...	1910.	Mar. 28, 1916.	April 19, 1915.	Oct. 3, 1915.
Number of Calves ...	—	2	3	3
Last Calved ...	Aug. 27.	Sept. 24.	Aug. 25.	July 5.
Days since Calving ...	51	23	53	104
Live weight, in lbs. ...	1,544	1,251	1,336	1,416
Weight of Milk, 1st day ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	35.1 31.3	22.6 18.7	28.2 25.3	38.2 28.0
Total ...	35.6 30.4	23.0 18.0	31.0 24.5	36.0 28.3
Average ...	70.7 61.7	45.6 36.7	59.2 49.8	74.2 56.3
Percentage of Fat ...	3.32 4.06	6.06 4.16	3.79 3.48	5.23 4.29
Composition of Solids other than Fat ...	8.38 7.98	9.70 9.30	8.47 8.64	8.51 8.55
Total Solids ...	11.70 12.04	15.76 13.46	12.26 12.12	13.74 12.84
Actual weight of Fat, in lbs. ...	1.17 1.25	1.39 .76	1.14 .86	1.94 1.21
Calculation of Points multiply by 20 ...	23.4 25.0	27.8 15.2	22.8 17.2	38.8 24.2
Actual weight of Solids other than Fat, in lbs. ...	2.96 2.46	2.22 1.70	2.50 2.16	3.15 2.40
Calculation of Points multiply by 4 ...	11.84 9.84	8.88 6.80	10.0 8.64	12.60 9.6
Points ...	1.10	—	1.30	6.4
For time since Calving ...	66.10	41.10	54.50	65.2
For weight of Milk (lbs.) ...	48.40	43.00	40.00	63.0
For weight of Fat (lbs. × 20) ...	21.08	15.68	18.64	22.2
For weight of Solids other than Fat (lbs. × 4) ...	137.28	99.78	114.44	156.8
Total ...	20.00	—	10.00	—
Deductions ...	117.28	99.78	104.44	156.8
Points gained ...	Highly Commanded.			
Remarks and Awards ...	...	...	...	2nd Prize.

CLASS 25.—BRITISH FRIESIAN COWS (BORN AFTER 1ST AUGUST, 1916, AND PREVIOUS TO 1ST AUGUST, 1918.)

Number ... Name ...	...	...	...	...	357 Petygards Masseuse. Nov. 30, 1916. 2 Sept. 17. 30 1,466	358 Moss Peggy. Sept. 26, 1916. — Sept. 13. 34 1,278	361 Beccles Silver Queen. Feb. 11, 1918. 1 Aug. 20. 58 1,421	362 Colton Bram Peppermint Jan. 20, 1917. 2 Aug. 30. 48 1,394
Born ...	...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Number of Calves ...	...	...	...	...	29-0 25-4	29-9 22-8	28-4 25-6	26-1 17-4
Last Calved ...	...	...	...	...	29-1 24-8	28 8 25-0	28-4 24-2	24-1 19-2
Days since Calving ...	...	...	...	...	58-1 50-2	58-7 47-8	56-8 49-8	50-2 36-6
Live weight, in lbs. ...	...	...	...	...	29-0 25-1	29-3 23-9	28-4 24-9	25-1 18-3
Weight of Milk, 1st day ...	...	...	...	...	4-25 3-81	4-16 4-24	3-88 4-92	6-09 5-70
Weight of Milk, 2nd day ...	...	...	...	...	9-11 8-89	8-54 8-46	8-76 8-60	9-13 8-78
Total ...	...	...	...	...	13-36 12-70	12-70 12-70	12-04 13-52	16-12 14-48
Average ...	...	...	...	...	1-23 .95	1-23 1-03	1-10 1-25	1-75 1-04
Percentage of Fat ...	...	...	...	...	24-6 19-0	24-6 20-6	22-0 25-0	35-0 20-8
Composition of the Milk. { Fat ... Solids other than Fat ... Total Solids ...	...	...	...	...	2-64 2-23	2-50 2-02	2-48 2-14	2-29 1-61
Actual weight of Fat, in lbs. ...	...	...	...	...	10-56 8-92	10-0 8-08	9-92 8-56	9-16 6-44
Calculation of Points multiply by 20 ...	...	...	...	...	—	—	1-8	0-8
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	...	54-1	53-20	53-3	43-4
Calculation of Points multiply by 4 ...	...	...	...	...	43-6	45-20	47-0	55-8
Points { For time since Calving ... For weight of Milk (lbs.) ... For weight of Fat (lbs. × 20) ... For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	19-5	18-08	18-5	15-6
	...	...	...	...	117-2	116-48	120-6	115-6
	...	...	...	...	—	10-00	—	—
	...	...	...	...	117-2	106-48	120-6	115-6
Remarks and Awards ...	...	...	...	...	2nd Prize.	Reserve.	1st Prize.	3rd Prize.

CLASS 26 — BRITISH FRIESIAN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1918).

Number ...	...	...	...	...	...	364	366	367	370
Name ...	...	...	...	...	...	Petyard's Tulip.	Milton Roma.	Attimore Mercia.	Kingswood Cores Myrth
Born ...	...	...	...	...	...	Dec. 30, 1918.	Sept. 15, 1918.	Dec. 4, 1918.	Jan. 28, 1919.
Number of Calves ...	...	...	...	...	...	—	—	—	1
Last Calved ...	...	...	...	...	...	Sept. 28.	May 31.	Aug. 20.	Aug. 27.
Days since Calving ...	...	...	...	...	...	19	139	58	51
Live weight, in lbs. ...	...	...	...	...	...	1,179	1,235	1,097	1,321
Weight of Milk, 1st day	...	...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	...	...	18-9 16-4	18-2 13-5	21-9 20-1	24-5 21-7
Total	...	...	...	...	...	16-7 15-6	17-5 14-6	24-0 17-9	28-4 22-0
Average	...	...	...	...	...	35-6 32-0	35-7 28-1	45-9 38-0	52-9 43-7
Percentage { Fat ...	...	...	...	...	...	17-8 16-0	17-8 14-0	22-9 19-0	26-4 21-8
Composition of { Solids other than Fat	...	...	...	...	...	3-86 3-55	4-46 3-77	4-12 4-00	3-77 3-25
the Milk. { Total Solids	...	...	...	...	...	9-04 9-13	8-60 8-61	8-54 8-24	8-19 8-09
Actual weight of Fat, in lbs. ...	...	...	...	...	...	12-90 12-68	13-06 12-38	12-66 12-24	11-96 11-34
Calculation of Points multiply by 20...	...	...	...	...	...	-69 -57	-79 -53	-945 -76	-995 -70
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	13-8 11-4	15-8 10-6	18-9 15-2	19-9 14-2
Calculation of Points multiply by 4 ...	...	...	...	...	...	1-61 1-46	1-53 1-20	1-96 1-56	2-16 1-76
{ For time since Calving For weight of Milk (lbs.) For weight of Fat (lbs. × 20) For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	...	6-44 5-84	6-12 4-80	7-84 6-24	8-64 7-04
	...	...	...	...	...	—	9-9	1-8	1-1
	...	...	...	...	...	33-80	31-8	41-9	48-2
	...	...	...	...	...	25-20	26-4	34-1	34-1
Total ...	...	...	...	...	...	12-28	10-9	14-1	15-7
Deductions ...	...	...	...	...	...	71-28	79-0	91-9	99-1
Points gained...	...	...	...	...	...	—	—	10-0	20-0
Remarks and Awards ...	...	...	...	...	...	71-28	79-0	81-9	79-1
							Reserve	2nd Prize.	3rd Prize.

CLASS 43.—GOATS (QUALIFIED AS STAR OR "Q" STAR MILKERS).

Number	...	...	...	...	456	457	465	466
Name	...	...	...	...	Ira Starry.	Problem of Bashley.	Ridgeway Rosalba.	Tremedda Ornella.
Born	...	...	...	...	Jan 22, 1916.	Mar. 7, 1918.	Mar. 29, 1919.	Mar. 3, 1919.
Number of Kids	...	...	...	...	—	—	3	3
Last Kidding	...	...	...	...	May 6.	May 5.	Feb. 1.	Mar. 25.
Days since Kidding	...	...	...	...	164	165	258	206
Live weight, in lbs.	...	...	...	...	140	144	171	159
Weight of Milk, 1st day	...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	...	5-3 4-2	5-9 5-2	3-6 3-3	4-9 4-0
Total	...	...	...	...	5-3 3-9	6-3 5-2	4-1 3-2	5-5 4-6
Average	...	...	...	...	10-6 8-1	12-2 10-4	7-7 6-5	10-4 8-6
Percentage	...	...	...	...	5-3 4-0	6-1 5-2	3-8 3-2	5-2 4-3
Composition of	...	...	...	...	4-98 4-95	4-38 4-28	6-95 5-67	6-54 6-07
the Milk.	...	...	...	...	8-86 9-03	8-84 8-64	9-13 9-27	9-82 9-85
Actual weight of Fat, in lbs.	...	...	...	...	13-94 13-98	13-22 12-92	16-08 14-94	16-36 15-92
Calculation of Points multiply by 20...	...	...	...	...	264 198	27 223	264 18	34 26
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	5-28 3-96	5-4 4-46	5-28 3-6	6-8 5-2
Calculation of Points multiply by 4	...	...	...	...	47 36	54 45	35 297	51 425
Points	...	...	...	...	1-88 1-44	2-16 1-80	1-40 1-188	2-04 1-70
For time since Kidding	...	...	...	...	2-07	2-08	3-6	2-8
For weight of Milk (lbs.)	...	...	...	...	9-30	11-30	7-0	9-5
For weight of Fat (lbs. × 20)	...	...	...	...	9-20	9-90	8-9	12-0
For weight of Solids other than Fat	...	...	...	...	3-30	4-00	2-6	3-7
(lbs. × 4)	...	...	...	...	23-90	27-28	22-1	28-0
Total	...	...	...	...	—	—	—	—
Deductions	...	...	...	...	23-90	27-28	22-1	28-0
Points gained...	...	...	...	...	Reserve.	2nd Prize.	Very Highly	1st Prize.
Remarks and Awards	...	...	...	...	Reserve.	2nd Prize.	Very Highly	Dewar Challenge
	...	...	...	...	Reserve.	2nd Prize.	Very Highly	Trophy.

CLASS 43.—GOATS (QUALIFIED AS STAR OR "Q" STAR MILKERS)—Continued.

Number Name	467 Atherstone Fath.	471 Sadberge Brambling.	472 Brentmoor Bunt.	473 Leazes Fortuna.
Born	May 3, 1918.	May 6, 1916.	Mar. 26, 1917.	May 3, 1918.
Number of Kids	2	—	5	3
Last Kiddled	Dec. 1, 1920.	April 15.	May 8.	April 6.
Days since Kidding	320	185	162	194
Live weight, in lbs.	144	144	161	161
Weight of Milk, 1st day	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	3-9 3-4	2-4 2-7	2-4 2-1	2-4 2-1
Total	4-4 3-4	3-1 2-3	2-5 1-8	3-0 2-3
Average	8-3 6-8	5-4 5-0	4-9 3-9	5-4 4-4
Percentage	4-1 3-4	2-7 2-5	2-4 1-9	2-7 2-2
Composition of	4-34 4-25	5-68 7-83	7-77 7-47	4-27 4-35
the Milk.	9-38 9-23	9-10 9-95	9-27 9-69	8-79 8-79
Actual weight of Fat, in lbs.	13-72 13-48	14-78 17-78	17-04 17-16	13-06 13-14
Calculation of Points multiply by 20...	-178 -145	-154 -196	-186 -142	-115 -095
Actual weight of Solids other than Fat, in lbs.	3-56 2-9	3-08 3-92	3-72 2-84	2-30 1-9
Calculation of Points multiply by 4 ...	-385 -314	-246 -248	-222 -184	-238 -193
Points	1-540 1-256	-984 -992	-888 -736	-952 -772
For time since Kidding	4-7	2-4	2-0	2-6
For weight of Milk (lbs.)	7-5	5-2	4-3	4-9
For weight of Fat (lbs. × 20)	6-5	7-0	6-6	4-2
For weight of Solids other than Fat	2-8	2-0	1-6	1-7
(lbs. × 4) ...	21-5	16-6	14-5	13-4
Total ...	—	—	—	—
Deductions	21-5	16-6	14-5	13-4
Points gained...	—	—	—	—
Remarks and Awards	Highly Commended.	Pomeroy Challenge Cup.	Reserve for Pomeroy Challenge Cup.	—

CLASS 43.—GOATS (QUALIFIED AS STAR OR "Q" STAR MILKERS)—(continued).

Number	...	...	...	474	477	478	488
Name	...	...	...	Preference.	Riding Thistle.	Riding Cherry.	Sadlerge Shuffling.
Born	...	...	...	Mar. 28, 1917.	May 9, 1917.	Mar. 9, 1919.	April 7, 1918.
Number of Kids	...	...	...	3	2	1	—
Last Kiddled	...	...	...	June 1.	April 23.	April 13.	May 10.
Days since Kidding	...	...	...	138	177	187	160
Live weight, in lbs.	...	...	...	159	132	108	113
Weight of Milk, 1st day	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	4.3 3.8	3.1 3.4	3.1 2.8	2.9 1.6
Total	...	...	...	4.4 2.9	3.9 3.5	3.8 2.7	2.0 1.9
Average	...	...	...	8.7 6.7	7.7 6.9	6.9 5.5	4.9 3.5
Percentage	...	...	...	4.3 3.3	3.8 3.4	3.4 2.7	2.4 1.7
Composition of	...	...	...	5.69 4.43	3.96 4.05	4.68 4.00	6.89 7.86
the Milk.	...	...	...	8.57 8.57	9.06 9.23	8.40 8.72	9.87 9.26
Total Solids	...	...	...	14.26 13.00	13.02 13.28	13.08 12.72	16.76 17.12
Actual weight of Fat, in lbs.	...	...	...	.244 .146	.15 .138	.159 .108	.166 .134
Calculation of Points multiply by 20...	...	...	...	4.88 2.92	3.0 2.76	3.18 2.16	3.32 2.68
Actual weight of Solids other than Fat, in lbs.	...	...	...	.368 .282	.344 .281	.236 .236	.236 .167
Calculation of Points multiply by 4 ...	...	...	...	1.472 1.128	1.370 1.124	1.144 .944	.944 .628
Points	...	...	...	1.6	2.3	2.4	2.0
For time since Kidding	...	...	...	7.6	7.2	6.1	4.1
For weight of Milk (lbs.)	...	...	...	7.8	5.7	5.3	6.0
For weight of Fat (lbs. × 20)	...	...	...	2.6	2.5	2.1	1.6
For weight of Solids other than Fat	...	...	...	19.6	17.7	15.9	13.7
(lbs. × 4) ...	...	...	...	19.6	17.7	15.9	13.7
Total	...	...	...	19.6	17.7	15.9	13.7
Deductions	...	...	...	19.6	17.7	15.9	13.7
Points gained...	...	...	...	19.6	17.7	15.9	13.7
Remarks and Awards	...	...	...	...	...	...	...

CLASS 43.—GOATS (QUALIFIED AS STAR OR "Q" STAR MILKERS)—Continued.

Number ...	...	...	...	490 ⁺ Horne Bay Honeysuckle	492 Riding Tansy.	496 Towcester Snowdrop.	504 Leazes Kidstone.
Name ...	...	...	...	...	...	...	...
Born ...	...	...	...	Feb. 25, 1919. 1	Mar. 14, 1918. 2	May 5, 1919. 1	June 26, 1917. 5
Number of Kids ...	...	...	...	...	...	...	...
Last KidDED ...	...	...	...	May 20. 150	April 5. 195	Feb. 12. 247	May 7. 163
Days since Kidding ...	...	...	...	157	126	157	136
Live weight, in lbs. ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day ...	...	...	...	2-2 2-2	2-8 2-9	3-1 3-0	4-3 3-9
Weight of Milk, 2nd day ...	...	...	...	2-4 1-6	3-7 3-0	3-5 2-7	5-0 4-1
Total ...	...	...	...	4-6 3-8	6-5 5-9	6-6 5-7	9-3 8-0
Average ...	...	...	...	2-3 1-9	3-2 2-9	3-3 2-8	4-6 4-0
Percentage { Fat ...	...	...	...	6-96 6-18	4-74 4-39	6-28 6-18	6-14 6-00
Composition of { Solids other than Fat	...	...	...	9-36 9-90	9-14 9-07	8-92 9-20	9-44 9-94
the Milk. { Total Solids	...	...	...	16-32 16-08	13-88 13-46	15-20 15-38	15-58 15-94
Actual weight of Fat, in lbs. ...	...	...	...	1-16 1-17	1-52 1-27	2-08 1-73	2-83 2-24
Calculation of Points multiply by 20 ...	...	...	...	3-2 2-34	3-04 2-54	4-16 3-46	5-66 4-8
Actual weight of Solids other than Fat, in lbs.	...	...	...	2-16 1-88	2-92 2-63	2-96 2-58	4-35 3-98
Calculation of Points multiply by 4 ...	...	...	...	8-64 7-52	1-168 1-052	1-184 1-032	1-740 1-592
Points { For time since Kidding For weight of Milk (lbs.) For weight of Fat (lbs. × 20) For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	1-8	2-6	3-4	2-0
	...	...	...	4-2	6-1	6-1	8-6
	...	...	...	5-5	5-6	7-6	10-5
	...	...	...	1-6	2-2	2-2	3-3
Total ...	...	...	...	13-1	16-5	19-3	24-4
Deductions ...	...	...	...	—	—	—	—
Points gained ...	...	...	...	13-1	16-5	19-3	24-4
Remarks and Awards ...	...	...	...	...	...	...	3rd Prize. Reserve for Trenchard Selené Challenge Cup.

CLASS 44.—GOATS (NOT ELIGIBLE FOR CLASS 43).

Number ...	...	458	459	460	461
Name ...	...	Beechmead Adeline.	Homestall Dafodil.	Calwyn Carmen.	Tremedda Thalla.
Born ...	...	Feb. 25, 1919.	April 30, 1918.	Mar. 8, 1920.	June 27, 1917.
Number of Kids ...	...	2	...	3	...
Last KidDED ...	...	May 13.	Mar. 13.	Aug. 21.	April 22.
Days since Kidding ...	...	157	218	57	178
Lave weight, in lbs. ...	...	102	159	94	115
Weight of Milk, 1st day ...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	3.1 2.7	3.8 3.4	3.9 3.7	2.9 2.5
Total ...	...	3.2 2.1	4.2 3.6	4.5 3.8	2.9 1.9
Average ...	...	6.3 4.8	8.0 7.0	8.4 7.5	5.8 4.4
...	...	3.1 2.4	4.0 3.5	4.2 3.7	2.9 2.2
Percentage of Fat ...	...	5.31 3.90	3.75 3.26	5.49 5.48	3.89 3.48
Composition of Solids other than Fat ...	...	9.03 8.56	8.71 8.96	9.29 8.88	8.17 8.48
the Milk. { Total Solids ...	...	14.34 12.46	12.46 12.22	14.78 14.36	12.06 11.96
Actual weight of Fat, in lbs. ...	...	.165 .094	.15 .114	.23 .203	.113 .077
Calculation of Points multiply by 20...	...	3.30 1.88	3.0 2.28	4.6 4.06	2.26 1.54
Actual weight of Solids other than Fat, in lbs. ...	...	.28 .206	.35 .314	.39 .328	.237 .187
Calculation of Points multiply by 4 ...	...	1.12 .824	1.40 1.256	1.56 1.312	.948 .748
{ For time since Kidding ...	...	1.95	2.9	.3	2.3
{ For weight of Milk (lbs.) ...	...	5.50	7.5	7.9	5.1
{ For weight of Fat (lbs. × 20) ...	...	5.18	5.3	8.6	3.8
{ For weight of Solids other than Fat (lbs. × 4) ...	...	1.94	2.6	2.9	1.7
Total ...	...	14.57	18.3	19.7	12.9
Deductions ...	...	—	—	—	—
Points gained...	...	14.57	18.3	19.7	12.9
Remarks and Award ...	...	/		Reserve.	

CLASS 44.—SHE GOATS (NOT ELIGIBLE FOR CLASS 43).—Continued.

Number ...	...	462	463	475	479
Name ...	...	Withdean Countess.	Coptthorne Pompon.	Patience of Bashley.	Raydon VI.
Born ...	...	April 22, 1917.	Mar. 30, 1918.	Mar. 12, 1919.	Mar. 29, 1917.
Number of Kids ...	...	5	5	—	6
Last Kidding ...	...	Mar. 12.	Mar. 5.	May 3.	June 12.
Days since Kidding ...	...	219	226	167	127
Lave weight, in lbs. ...	...	132	135	141	107
Weight of Milk, 1st day ...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	5-0 4-5	4-5 4-2	1-8 1-6	2-7 2-4
Total ...	...	5-4 4-0	4-8 3-7	2-1 1-5	3-2 2-6
Average ...	...	10-4 8-5	9-3 7-9	3-9 3-1	5-9 5-0
Percentage { Fat ...	...	5-2 4-2	4-6 3-9	1-9 1-5	2-9 2-5
Composition of { Solids other than Fat	...	4-64 5-34	4-86 4-84	4-06 4-17	6-45 6-47
the Milk. { Total Solids	...	8-34 8-50	8-14 8-12	8-52 8-75	8-75 9-21
Actual weight of Fat, in lbs. ...	...	12-98 13-84	13-00 12-96	12-58 12-92	15-20 15-68
Calculation of Points multiply by 20 ...	...	.241 .224	.224 .189	.077 .062	.187 .162
Actual weight of Solids other than Fat, in lbs.	...	4-82 4-48	4-48 3-78	1-54 1-24	3-74 3-24
Calculation of Points multiply by 4 ...	...	.435 .357	.374 .318	.162 .131	.254 .23
For time since Kidding ...	...	1-740 1-428	1-496 1-272	.648 .524	1-016 .92
For weight of Milk (lbs.) ...	...	2-9	3-1	2-1	1-45
For weight of Fat (lbs. × 20)	...	9-4	8-5	3-4	5-40
For weight of Solids other than Fat (lbs. × 4)	...	9-3	8-3	2-8	6-98
Total ...	...	3-2	2-8	1-2	1-94
Deductions ...	...	24-8	22-7	9-5	15-77
Points gained ...	...	24-8	22-7	9-5	15-77
Remarks and Awards ...	...	1st Prize.	2nd Prize.		

CLASS 44. — (GOATS NOT ELIGIBLE FOR CLASS 43). — Continued.

Number ...	...	...	487	500	501	502
Name ...	...	...	Dunwich Destiny.	Tremedda Bijou.	Homstead Ruby.	White Dorothy.
Born ...	...	...	April 21, 1919.	Mar. 20, 1919.	Mar. 20, 1918.	June 24, 1919.
Number of Kids ...	...	...	4	—	—	—
Last Kiddled ...	...	...	July 29.	April 14.	April 25.	July 12.
Days since Kidding ...	...	...	80	186	115	97
Live weight, in lbs. ...	...	...	98	110	144	148
Weight of Milk, 1st day	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	1-6 1-4	2-7 2-3	3-1 3-4	3-2 2-9
Total	...	...	1-7 1-2	2-9 2-0	3-9 2-9	4-0 3-1
Average	...	...	3-3 2-6	5-6 4-3	7-0 6-3	7-2 6-0
Percentage	...	...	1-6 1-3	2-8 2-1	3-5 3-1	3-6 3-0
Composition of	...	...	6-75 6-76	4-71 4-23	5-01 5-49	5-17 4-95
the Milk.	...	...	8-79 9-06	8-61 8-83	8-71 9-09	9-25 9-23
Total Solids	...	...	15-54 15-82	13-32 13-06	13-72 14-58	14-42 14-18
Actual weight of Fat, in lbs. ...	...	...	1-08 .084	1-32 .089	1-76 .17	1-86 .185
Calculation of Points multiply by 20...	...	...	2-16 1-68	2-64 1-78	3-52 3-4	3-72 3-7
Actual weight of Solids other than Fat, in lbs.	...	...	1-41 1-12	2-42 1-86	3-06 2-32	3-34 2-77
Calculation of Points multiply by 4 ...	...	...	5-64 .448	9-68 .744	1-224 .928	1-336 1-108
Points	...	...	.70	2-7	1-2	.95
For time since Kidding	...	...	2-90	4-9	6-6	6-60
For weight of Fat (lbs. × 20)	...	...	3-84	4-4	6-9	7-42
For weight of Solids other than Fat	...	...	1-01	1-7	2-2	2-44
(lbs. × 4) ...	...	...	8-45	13-7	16-9	17-41
Total	...	...	—	—	—	—
Deductions	...	...	8-45	13-7	16-9	17-41
Points gained...	...	...	...	...	...	...
Remarks and Awards ...	...	...	...	...	...	...

THE DAIRY SHOW BUTTER TESTS OF 1921.

By R. H. EVANS, B.Sc.,

Madryn Castle Farm School, Pwllheli, North Wales.

The Prizes in the Butter Tests were awarded according to the following scale of points :—

One point for every ounce of butter.

One point for every completed 10 days since calving, calculated to the first day of the Show, deducting the first 40 days. The maximum points for lactation to be twelve.

The award of points for lactation is governed by the following conditions :—

- (a) Cows served within 90 days after calving, but not later, may obtain maximum points for lactation.
- (b) Cows which have calved 91 to 120 days, and have been served within that time can only obtain a maximum of 8 points.
- (c) Cows not served within 120 days after calving can only obtain a maximum of 5 points for lactation.
- (d) Cows that have calved 121 to 150 days, and have been served within that period, but not later, can only obtain a maximum of 4 points for lactation.
- (e) Cows not served within 150 days after calving can only obtain a maximum of 2 points for lactation.
- (f) Cows which have calved over 150 days, whether served or not after that time, will not receive any points for lactation.

Fractions of ounces of butter, and incomplete periods of less than 10 days, to be worked out in decimals, and added to the total points.

A Certificate, giving the last date of calving (which must be at least 14 days before the opening day of the Show), the last date of service, and stating that the cow has not broken her service since that date, signed by the owner of the cow exhibited, or his agent, must in every case be brought to the Steward of Dairying as soon as possible after the arrival of the animal in the Hall.

In the case of cows obtaining the same number of points, the prize to be awarded to the cow that has been the longest in milk.

The following was the standard scale of points for the various breeds entered for the 1921 Butter Tests. An animal failing to reach these standards, was not eligible for a prize:—

Breed.	Cows under 5 years. Points.	Cows 5 years and over. Points.
Pedigree Shorthorns	30	34
Non-Pedigree Shorthorns	30	34
British Friesians	30	34
Lincoln Red Shorthorns	30	34
Jerseys	30	35
Guernseys	27	30
Red Polls	30	34
Ayrshires	27	30
Devons	27	30
South Devons	30	34
Kerries	26	29
Dexter Kerries	26	29

Certificates of Merit and Highly Commended cards are awarded to animals other than prize-winners that reach the above standards.

The total number of entries for the 1921 Butter Tests were as follows:—

Pedigree Shorthorns	58
Non-Pedigree Shorthorns	22
Lincolnshire Reds	9
Jerseys	33
Red Polls... ..	22
Guernsey	24
Devons	7
South Devons	5
Ayrshires	4
Kerries	23
Dexters	4
Friesians	26
Welsh	2
Total	<u>239</u>

Of this number, 173 cows were actually tested. This shows an increase of 62 on the 1920 figure, and constitutes a record for the Dairy Show.

Of the 70 Shorthorns tested, 15 cows yielded over 2 lbs. of butter in 24 hours. The first prize was awarded to Mr. Jno. Evens' "Burton Fillingham," with a yield of 3 lbs. 3 $\frac{3}{4}$ ozs. from 71 lbs. 3 ozs. of milk, showing a butter ratio of 1 to 22—a fine performance. This cow was closely followed by Mr. J. N. Astley's "Southfield Lady," a cow yielding 3 lbs. 3 ozs. of butter from 50 lbs. 13 ozs. milk, with a butter ratio of 1 to 15.94—very rich milk for a Shorthorn. The third prize in this class was awarded to Mr. Jno. Evens' "Burton Suttie 2nd"

(2 lbs. 7 ozs. butter), but obtaining 7.5 points for lactation, and the fourth prize to Messrs. J. F. Nelson & Co.'s "Lady Nelson" (2 lbs. 12 ozs. butter).

Of the 24 Jerseys tested, 4 yielded above 2 lbs. of butter, the highest yield in the class (2 lbs. 9½ ozs.) being that of Mr. R. Bruce Ward's "Marseillaise."

The 19 Guernseys tested proved an excellent lot of cows, the premier honours going to Mrs. R. C. Bainbridge, and Mrs. Jervoise.

Among the Red Polls, Mr. M. C. Pilkington's "Harefield Ruth" yielding 2 lbs. 8 ozs. of butter, and Lt.-Col. W. Elwes' "Kirton Fryer" yielding 2 lbs. 7 ozs., were the prize winners.

The Kerries and Dexters showed some improvement, and awards were made in both classes.

The Devons and South Devons were well up to the average for these breeds, and the two Ayrshires shown were excellent animals.

Fewer Friesians were entered for the 1921 Butter Tests than was the case in 1920. The outstanding cow in this class was Messrs. W. R. Wallace's "Bladen Early," which yielded 3 lbs. 5 ozs. of butter from 80 lbs. 11 ozs. of milk.

A great deal of difficulty was again experienced in churning the cream of some of the cows entered for the test, and although no cases of unchurnable cream were met with, still by comparing the figures obtained by analysis and those obtained by churning (see Table IV), it will be noticed that a great deal of fat remained unchurned in some cases. (See Nos. 8, 16, 21, 45, and 348).

This may be due to temperament, or to feeding, or to a combination of causes, but no definite reason can be given in the case of any individual animal without first of all conducting a scientific investigation.

The results obtained in the past and those of 1921 are given in the table at foot of page 169.

My best thanks are due to my two colleagues, Mr. T. W. Hammond and Mr. L. J. Craufurd (representing the Jersey Cattle Society), who rendered valuable assistance in the carrying out of the tests.

TABLE I.—NUMBER OF CATTLE TESTED SINCE 1897.

Breed	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1919	1920	1921
Shorthorns	9	23	21	22	15	31	18	14	17	22	26	26	19	22	26	30	26	20	20	24	30	63
Lincoln Reds	—	—	—	—	—	—	—	—	—	—	7	9	8	8	6	6	5	4	2	4	4	7
Jerseys	14	17	15	29	25	30	20	12	18	13	13	16	22	18	18	7	18	9	10	22	21	24
Guernseys	3	5	4	7	8	1	5	3	3	2	2	2	2	2	1	2	6	5	7	16	14	19
Red Polls ...	7	4	9	7	2	6	5	4	11	12	11	3	4	4	1	1	—	—	1	11	12	17
Ayrshires ...	3	1	2	—	1	1	—	1	3	2	—	4	—	1	—	4	—	—	—	—	—	2
Sch. Devons	—	—	—	—	—	—	2	2	3	5	—	—	4	7	2	4	2	6	3	—	—	5
Dutch	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kerries and Dexters	—	1	2	—	1	2	—	2	1	2	2	5	2	—	1	—	5	—	—	10	13	20
Welsh	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cross-breds	4	1	6	2	2	11	8	6	8	10	—	—	—	—	—	—	—	—	—	—	—	—
British Friesians	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	2	15	10
Devons ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	2	6
	41	53	60	68	54	82	59	44	64	68	61	65	61	62	55	54	62	45	45	94	111	173

TABLE II.—NUMBER OF CATTLE OF THE VARIOUS BREEDS TESTED SINCE 1895, WITH THEIR AVERAGE PERIOD OF LACTATION, WEIGHT OF BUTTER, BUTTER RATIOS, AND POINTS.

Year	No.	Breed	Average No. of Days in Milk	Average Weight of Butter	Average Butter Ratio	Average No. of Points
				lbs ozs.	lbs.	
From 1895 to 1900	106	Shorthorns...	50½	1 11	28·81	—
1901	15	" ...	44	2 0½	25·69	33·69
1902	31	" ...	50	1 11½	27·38	23·89
1903	18	" ...	41	1 11	38·59	28·44
1904	14	" ...	41½	1 10	29·31	27·47
1905	17	" ...	53	1 13½	27·65	31·25
1906	22	" ...	58	1 6¾	32·87	25·08
1907	26	" ...	62	1 11¾	29·23	30·24
1908	35	" ...	49	1 11	29·39	28·05
1909	19	" ...	54	1 14	27·25	32·31
1910	22	" ...	43	1 13½	27·53	31·39
1911	26	" ...	39	1 12¼	28·42	29·28
1912	30	" ...	44	2 0½	26·58	33·75
1913	26	" ...	38	1 10½	31·45	27·54
1914	20	" ...	40	1 13½	27·61	29·50
1915	20	" ...	44	1 10½	33·63	26·99
1919 ...	24	" ...	34	1 13½	21·35	28·82
1920	30	" ...	34	1 11¼	25·43	27·91
1921	63	" ...	29	1 8	30·25	24·20
1907	7	Lincoln Reds	57	1 13½	28·31	31·91
1908	9	" ...	61	1 12	28·00	30·60
1909	8	" ...	44	1 14¾	24·81	32·09
1910	8	" ...	79	1 10¾	27·15	31·39
1911	6	" ...	78	1 11	27·03	30·97
1912	6	" ...	36	1 14½	26·72	30·92
1913	5	" ...	44	1 13½	27·78	29·72
1914	4	" ...	49	1 9¾	30·21	27·37
1915	2	" ...	106	1 10¼	52·81	32·11
1919	4	" ...	58	1 13¾	29·20	32·32
1920	4	" ...	59	1 5½	31·61	23·90
1921	7	" ...	64	1 13½	27·13	31·40
From 1895 to 1900	126	Jerseys ...	99	1 10¼	19·15	—
1901	25	" ...	141	1 9½	17·80	34·44
1902	30	" ...	124	1 10	18·46	33·19
1903	20	" ...	141	1 11	18·12	36·13
1904	12	" ...	117	1 13½	19·62	36·79
1905	18	" ...	134	1 10¾	19·48	35·51
1906	13	" ...	119	1 10¼	20·89	33·49
1907	13	" ...	111	1 11	19·71	34·49
1908	16	" ...	115	1 7¼	22·35	30·00
1909	22	" ...	116	1 13½	18·36	37·12
1910	18	" ...	123	1 13½	18·43	37·05
1911	18	" ...	116	1 11½	19·98	34·11
1912	7	" ...	143	2 1	18·26	40·77
1913	18	" ...	136	1 10¼	19·24	35·85
1914	9	" ...	142	1 15	18·77	40·12

TABLE II.—NUMBER OF CATTLE OF THE VARIOUS BREEDS TESTED SINCE 1895, WITH THEIR AVERAGE PERIOD OF LACTATION, WEIGHT OF BUTTER, BUTTER RATIOS, AND POINTS—*Continued.*

Year	No.	Breed	Average No. of Days in Milk	Average Weight of Butter	Average Butter Ratio	Average No. of Points
				lbs. ozs.	lbs.	
1915	10	Jerseys ...	123	1 11 $\frac{3}{4}$	19.00	35.56
1919	22	" ...	111	1 11 $\frac{1}{4}$	18.76	33.59
1920	21	" ...	106	1 11	18.85	32.74
1921	24	" ...	127	1 9 $\frac{1}{2}$	18.56	32.29
From 1895 to 1900	23	Guernseys ...	71 $\frac{1}{2}$	1 9 $\frac{1}{2}$	21.86	—
1901	8	" ...	81	1 8 $\frac{3}{4}$	21.43	29.51
1902	1	" ...	17	1 3 $\frac{3}{4}$	21.46	19.75
1903	5	" ...	52	1 1	27.77	18.93
1904	3	" ...	98 $\frac{1}{2}$	1 10	20.65	31.91
1905	3	" ...	165 $\frac{3}{4}$	1 6 $\frac{3}{4}$	19.66	31.78
1906	2	" ...	138	1 3 $\frac{1}{2}$	27.00	28.45
1907	2	" ...	82	1 12 $\frac{1}{2}$	18.90	33.48
1908	2	" ...	142	1 13 $\frac{1}{2}$	19.47	37.90
1909	2	" ...	66	1 9 $\frac{1}{2}$	21.13	28.27
1910	2	" ...	57	1 3 $\frac{3}{4}$	26.80	21.93
1911	1	" ...	181	0 14	39.28	26.00
1912	2	" ...	53	1 2 $\frac{1}{2}$	24.32	20.55
1913	6	" ...	139	1 6 $\frac{1}{2}$	21.94	30.66
1914	5	" ...	110	1 6 $\frac{1}{4}$	21.88	29.53
1915	7	" ...	107	1 6 $\frac{1}{2}$	22.30	30.09
1919	16	" ...	80	1 7 $\frac{1}{4}$	19.76	27.16
1920	14	" ...	82	1 8 $\frac{1}{4}$	21.22	28.53
1921	19	" ...	82	1 8 $\frac{1}{2}$	20.45	27.47
From 1895 to 1900	30	Red Polls ...	60 $\frac{1}{2}$	1 4 $\frac{3}{4}$	30.29	—
1901	2	" ...	80	1 8 $\frac{5}{8}$	25.50	28.77
1902	6	" ...	83	1 6 $\frac{1}{8}$	26.84	26.92
1903	5	" ...	124	1 0	39.60	21.39
1904	4	" ...	115 $\frac{1}{2}$	1 5 $\frac{1}{2}$	30.34	29.06
1905	11	" ...	74 $\frac{1}{2}$	1 3 $\frac{1}{2}$	28.78	22.76
1906	12	" ...	76	0 15	39.15	18.81
1907	11	" ...	99	1 2 $\frac{1}{2}$	33.21	23.96
1908	3	" ...	92	1 1	35.00	22.16
1909	4	" ...	86	1 4 $\frac{1}{2}$	32.73	25.37
1910	4	" ...	78	1 4 $\frac{1}{2}$	30.81	24.35
1911	1	" ...	76	0 15	36.60	18.60
1912	1	" ...	26	1 0	43.80	16.00
1915	1	" ...	31	—	—	—
1919	11	" ...	49	1 8 $\frac{1}{2}$	30.03	26.02
1920	12	" ...	61	1 5 $\frac{1}{2}$	31.46	23.66
1921	17	" ...	68	1 9 $\frac{1}{2}$	24.73	27.52
From 1895 to 1900	8	Ayrshires ...	52	1 13 $\frac{1}{4}$	26.35	—
1901	1	" ...	125	1 7 $\frac{1}{2}$	27.65	32.10
1902	1	" ...	33	1 3 $\frac{1}{2}$	18.00	19.50
1904	1	" ...	116	0 12 $\frac{1}{2}$	35.20	20.10

TABLE II.—NUMBER OF CATTLE OF THE VARIOUS BREEDS TESTED SINCE 1895, WITH THEIR AVERAGE PERIOD OF LACTATION, WEIGHT OF BUTTER, BUTTER RATIOS, AND POINTS—*Continued.*

Year	No.	Breed	Average No. of Days in Milk	Average Weight of Butter	Average Butter. Ratio	Average No. of Points
1905	3	Ayrshires ...	77	lbs. ozs. 1 2 $\frac{1}{2}$	lbs. 28.07	22.88
1906	2	" ...	23	1 11 $\frac{1}{2}$	25.51	27.70
1908	4	" ...	75	1 2	35.19	21.00
1910	1	" ...	88	1 15	25.93	25.80
1912	4	" ...	71	1 5 $\frac{1}{2}$	32.52	24.65
1921	2	" ...	39	2 5	20.15	37.20
1909	4	South Devons	105	1 13 $\frac{3}{4}$	24.77	33.66
1910	7	" ...	91	1 11 $\frac{1}{2}$	29.33	32.87
1911	2	" ...	144	1 5	38.98	31.52
1912	4	" ...	90	1 15 $\frac{3}{4}$	26.51	36.74
1913	2	" ...	62	1 8 $\frac{1}{4}$	30.96	26.50
1914	6	" ...	78	1 12	28.85	32.11
1915	3	" ...	42	1 1 $\frac{1}{2}$	40.50	17.88
1921	5	" ...	77	1 14 $\frac{1}{4}$	22.06	34.42
From 1895 to 1900	3	Dexters and Kerries	117	0 14 $\frac{1}{2}$	40.80	—
1901	1	" ...	83	1 6 $\frac{1}{4}$	21.17	26.55
1902	2	" ...	46	1 7 $\frac{3}{8}$	21.28	23.49
1904	2	" ...	72	0 14 $\frac{1}{2}$	21.31	18.45
1905	1	" ...	149	1 1 $\frac{1}{4}$	23.47	28.15
1906	2	" ...	33	1 13	22.40	29.10
1907	2	" ...	65	1 11 $\frac{1}{4}$	21.06	29.70
1908	5	" ...	124	1 6	24.47	29.13
1909	2	Kerries ...	75	1 6	20.86	25.65
1911	1	" ...	162	1 3 $\frac{1}{2}$	28.51	31.59
1913	5	" ...	43	1 3	25.98	19.70
1919	4	" ...	32	1 2 $\frac{1}{2}$	27.66	18.71
1920	8	" ...	63	1 7	22.81	25.77
1921	17	" ...	76	1 3 $\frac{1}{2}$	23.16	22.43
1919	6	Dexters ...	129	0 15 $\frac{1}{4}$	23.48	23.84
1920	5	" ...	112	0 12 $\frac{1}{2}$	21.78	19.21
1921	3	" ...	153	0 11	24.33	22.30
1914	1	British Friesians	102	1 3 $\frac{1}{2}$	44.87	25.70
1915	2	" ...	40	1 12	38.51	29.20
1919	2	" ...	28	1 10 $\frac{1}{2}$	36.05	26.50
1920	15	" ...	50	1 13	29.59	31.17
1921	10	" ...	85	2 3	28.26	39.00
1919	5	Devons ..	60	1 9 $\frac{1}{4}$	24.47	27.57
1920	2	" ...	25	1 15 $\frac{1}{2}$	19.32	31.55
1921	6	" ...	48	1 15	21.92	32.60

TABLE III.—AVERAGE YIELD OF BUTTER OF THE DIFFERENT BREEDS AT DIFFERENT PERIODS.

Year	Breed	No. of Cows	Days in Milk, 50	No. of Cows	Days in Milk, 100	No. of Cows	Days in Milk, 135	No. of Cows	Days in Milk, 190
1895 to			lbs. ozs.		lbs. ozs.		lbs. ozs.		lbs. ozs.
1900	Shorthorns	19	1 12½	6	1 7½	2	1 4⅝	8	1 1½
1901	"	2	1 8	—	—	1	2 6	—	—
1902	"	6	1 10½	—	—	1	1 11	—	—
1903	"	3	1 7	—	—	1	1 6½	—	—
1904	"	3	1 10½	1	1 14½	—	—	—	—
1905	"	2	1 1	1	2 0½	2	1 7½	—	—
1906	"	11	1 8½	3	1 3½	—	—	—	—
1907	"	11	1 9½	2	1 9¾	1	0 15¾	—	—
1908	"	11	1 11¾	—	—	2	1 12	—	—
1909	"	11	2 0½	5	1 11½	3	1 8½	—	—
1910	"	16	1 14½	5	2 1	1	1 3½	—	—
1911	"	20	1 13	6	1 9½	—	—	—	—
1912	"	23	2 2¾	6	1 8¾	1	1 14	—	—
1913	"	20	1 11	5	1 8½	1	1 5	—	—
1914	"	17	1 15	1	0 12	2	1 7½	—	—
1915	"	17	1 11½	2	1 5	—	—	—	—
1919	"	20	1 13½	4	1 12½	—	—	—	—
1920	"	25	1 12½	5	1 6½	—	—	—	—
1921	"	56	1 8½	5	1 5½	—	—	—	—
1907	Lincoln Reds	3	1 12	1	1 11	—	—	—	—
1909	"	6	2 1	1	1 9¾	1	1 7	—	—
1910	"	4	1 10½	—	—	3	1 10½	1	1 13½
1911	"	4	1 10½	—	—	—	—	2	1 12
1912	"	5	1 15¾	1	1 8½	—	—	—	—
1913	"	5	1 13½	—	—	—	—	—	—
1914	"	3	1 9	1	1 12	—	—	—	—
1915	"	—	—	1	1 13¾	—	—	1	1 7
1919	"	2	1 14½	1	2 3½	1	1 6½	—	—
1920	"	2	1 8½	2	1 2½	—	—	—	—
1921	"	4	1 14½	1	1 10½	2	1 11½	—	—
1895 to									
1900	Jerseys	23	1 10½	15	1 8½	11	1 8½	31	1 10½
1901	"	1	1 12	8	1 7½	6	1 9	12	1 10½
1902	"	4	1 9¾	3	1 8¾	2	1 14	9	1 11
1903	"	4	1 9¾	5	1 15	9	1 9¾	2	1 9¾
1904	"	2	1 10½	3	2 2½	4	2 0½	1	1 13½
1905	"	3	1 8½	4	1 15½	8	1 9½	2	1 8½
1906	"	5	1 10½	3	1 3½	4	1 15½	1	1 5½
1907	"	6	1 13½	2	1 7½	3	1 13	1	1 4½
1908	"	4	1 14½	3	1 10	4	1 1	2	1 2
1909	"	3	1 3	4	2 2½	6	1 14¾	9	1 12
1910	"	2	1 10½	5	1 13½	2	1 15½	7	1 13½
1911	"	3	1 0¾	6	1 11	1	2 5½	4	1 12½
1912	"	—	—	2	1 8½	2	2 1	—	—

TABLE III.—AVERAGE YIELD OF BUTTER OF THE DIFFERENT BREEDS AT DIFFERENT PERIODS—*Continued.*

Year	Breed	No. of Cows	Days in Milk, 50	No. of Cows	Days in Milk, 100	No. of Cows	Days in Milk, 135	No. of Cows	Days in Milk, 190
			lbs. ozs.		lbs. ozs.		lbs. ozs.		lbs. ozs.
1913	Jerseys ...	1	1 5 $\frac{1}{4}$	5	1 11	1	1 12	8	1 7
1914	"	1	1 8	1	2 1 $\frac{1}{2}$	1	1 10	4	2 1
1915	"	2	1 9 $\frac{1}{2}$	1	1 8	1	2 0 $\frac{3}{4}$	5	1 13 $\frac{1}{4}$
1919	"	3	1 15 $\frac{1}{4}$	8	1 7 $\frac{1}{2}$	4	1 12 $\frac{3}{4}$	4	1 11 $\frac{1}{4}$
1920	"	6	1 13 $\frac{1}{2}$	4	1 11 $\frac{3}{4}$	3	1 14	6	1 5 $\frac{1}{2}$
1921	"	1	1 2 $\frac{3}{4}$	8	1 8 $\frac{1}{2}$	4	1 15	8	1 7 $\frac{1}{2}$
1895 to									
1900	Guernseys	3	1 7 $\frac{1}{2}$	4	1 7 $\frac{1}{2}$	3	1 4 $\frac{3}{8}$	1	1 8
1901	"	1	1 15 $\frac{1}{4}$	2	1 5 $\frac{3}{4}$	—	—	2	1 8 $\frac{5}{8}$
1903	"	2	0 15 $\frac{1}{4}$	—	—	—	—	—	—
1904	"	2	1 6 $\frac{3}{4}$	—	—	1	2 0 $\frac{1}{4}$	—	—
1905	"	1	1 10 $\frac{1}{2}$	—	—	1	1 12 $\frac{1}{4}$	1	0 13 $\frac{1}{2}$
1906	"	—	—	1	1 1	1	1 5 $\frac{1}{2}$	—	—
1907	"	—	—	—	—	—	—	1	1 14
1908	"	1	1 13	—	—	—	—	1	1 14
1909	"	1	1 11	1	1 8 $\frac{1}{4}$	—	—	—	—
1910	"	1	1 3 $\frac{1}{2}$	1	1 3 $\frac{3}{4}$	—	—	—	—
1911	"	—	—	—	—	—	—	1	0 14
1912	"	1	1 3	1	1 2	—	—	—	—
1913	"	1	1 8	1	1 6 $\frac{3}{4}$	1	1 12	—	—
1914	"	2	1 11	—	—	—	—	3	1 3 $\frac{3}{4}$
1915	"	1	0 14 $\frac{1}{4}$	2	1 14	2	1 7 $\frac{3}{4}$	2	1 5 $\frac{1}{2}$
1919	"	8	1 8 $\frac{1}{4}$	2	1 11	2	1 2 $\frac{1}{4}$	4	1 7 $\frac{3}{4}$
1920	"	4	1 10	5	1 11 $\frac{1}{4}$	3	1 2 $\frac{1}{2}$	1	1 2
1921	"	7	1 12	5	1 5	2	1 7 $\frac{1}{4}$	5	1 7
1895 to									
1900	Red Polls	10	1 4 $\frac{1}{2}$	2	1 8 $\frac{5}{8}$	2	0 12 $\frac{3}{4}$	1	0 11
1901	"	—	—	2	1 8 $\frac{5}{8}$	—	—	1	—
1902	"	—	—	3	1 8	—	—	—	1 2 $\frac{1}{4}$
1903	"	1	0 13 $\frac{3}{4}$	1	1 1 $\frac{1}{4}$	—	—	1	0 13
1904	"	1	1 13	2	1 1	1	1 7 $\frac{1}{4}$	—	—
1905	"	3	1 1	2	1 5	—	—	1	0 12
1906	"	7	1 0	—	—	2	0 14 $\frac{1}{4}$	—	—
1907	"	5	1 4	—	—	4	1 1 $\frac{1}{4}$	—	—
1908	"	1	1 2 $\frac{3}{4}$	—	—	—	—	1	1 1
1909	"	1	1 12	1	1 2 $\frac{3}{4}$	1	1 6 $\frac{1}{4}$	1	0 12 $\frac{1}{4}$
1910	"	2	1 3 $\frac{1}{4}$	1	1 9 $\frac{1}{4}$	—	—	1	1 2 $\frac{1}{4}$
1911	"	—	—	1	0 15	—	—	—	—
1912	"	1	1 0	—	—	—	—	—	—
1915	"	1	—	—	—	—	—	—	—
1919	"	6	1 10	5	1 6 $\frac{1}{4}$	—	—	—	—
1920	"	8	1 7 $\frac{1}{4}$	2	1 2	1	0 15 $\frac{1}{2}$	1	1 2
1921	"	7	1 12 $\frac{1}{2}$	6	1 6 $\frac{3}{4}$	2	1 9 $\frac{1}{2}$	2	1 7 $\frac{1}{2}$
1908	Ayrshires	—	—	—	—	—	—	1	0 12
1910	"	—	—	1	1 15	—	—	—	—
1912	"	2	1 4 $\frac{1}{2}$	2	1 6 $\frac{1}{2}$	—	—	—	—
1921	"	2	2 5	—	—	—	—	—	—

TABLE III.—AVERAGE YIELD OF BUTTER OF THE DIFFERENT BREEDS AT DIFFERENT PERIODS—*Continued.*

Year	Breed	No. of Cows	Days in Milk, 50	No. of Cows	Days in Milk, 100	No. of Cows	Days in Milk, 135	No. of Cows	Days in Milk, 190
			lbs. ozs.		lbs. ozs.		lbs. ozs.		lbs. ozs.
1909	South Devons	1	2 5 $\frac{3}{4}$	1	1 1 $\frac{1}{2}$	—	—	2	1 11 $\frac{1}{2}$
1910	"	1	2 5 $\frac{1}{4}$	4	1 11 $\frac{1}{2}$	1	2 0	1	0 12 $\frac{3}{4}$
1911	"	—	—	—	—	—	—	2	1 5
1912	"	2	2 0 $\frac{1}{2}$	—	—	1	2 3 $\frac{1}{2}$	1	1 10 $\frac{1}{4}$
1913	"	1	2 3 $\frac{1}{2}$	1	0 13	—	—	—	—
1914	"	3	2 1	1	1 15	1	1 4 $\frac{1}{2}$	1	1 2 $\frac{3}{4}$
1915	"	2	1 5 $\frac{1}{4}$	1	0 9	—	—	—	—
1921	"	1	2 6	3	1 8 $\frac{1}{2}$	—	—	1	2 7
1908	Kerries & Dexters	—	—	—	—	1	0 14	2	1 2
1909	"	1	1 5	—	—	1	1 7	—	—
1911	"	—	—	—	—	—	—	1	1 3 $\frac{1}{2}$
1913	"	4	1 4 $\frac{1}{4}$	1	0 13 $\frac{1}{2}$	—	—	—	—
1919	"	4	1 15	1	1 4	1	0 10 $\frac{1}{2}$	2	0 14 $\frac{1}{2}$
1920	"	5	1 5 $\frac{3}{4}$	3	1 5	2	0 14 $\frac{1}{4}$	2	1 2 $\frac{1}{4}$
1921	"	7	1 2 $\frac{1}{2}$	5	1 4	2	0 15	6	0 14 $\frac{1}{2}$
1914	British Friesians	—	—	—	—	1	1 3 $\frac{1}{2}$	—	—
1915	"	1	1 14	1	1 10	—	—	—	—
1919	"	2	1 10 $\frac{1}{2}$	—	—	—	—	—	—
1920	"	10	1 12 $\frac{1}{4}$	3	1 11 $\frac{3}{4}$	2	2 2 $\frac{1}{4}$	—	—
1921	"	3	2 3 $\frac{1}{4}$	2	1 14	3	2 6 $\frac{1}{2}$	2	2 1 $\frac{1}{2}$
1919	Devons	2	1 15 $\frac{1}{2}$	2	1 6 $\frac{1}{4}$	1	1 3	—	—
1920	"	2	1 15 $\frac{1}{2}$	—	—	—	—	—	—
1921	"	5	2 0 $\frac{1}{2}$	—	—	—	—	1	1 6

The following table gives the average results of the tests for all breeds competing:—

Year.	Total No. of Cows.	Average weight of 24 hours' Milk.	Average Yield of Butter.	Average Butter Ratio.	Average No. of Points.
		lbs.	lbs. ozs.		
1909	61	42	1 12 $\frac{3}{4}$	23.51	33.30
1910	62	44	1 12 $\frac{1}{2}$	25.03	32.50
1911	55	43 $\frac{1}{2}$	1 11	25.87	30.90
1912	54	49 $\frac{1}{2}$	1 14 $\frac{3}{4}$	25.82	33.08
1913	62	42	1 9 $\frac{1}{2}$	26.05	29.26
1914	45	45 $\frac{1}{2}$	1 12 $\frac{1}{4}$	25.67	31.69
1915	45	46 $\frac{1}{4}$	1 9	29.83	28.49
1919	94	37 $\frac{1}{2}$	1 9 $\frac{3}{4}$	23.43	28.61
1920	111	39	1 9 $\frac{1}{4}$	24.21	28.25
1921	173	39 $\frac{3}{4}$	1 6 $\frac{1}{2}$	25.35	27.68

TABLE IV.—COMPARISONS OF CHURNINGS WITH ANALYSES.

SHORTHORNS.

No. in Catalogue	Weight of Butter Churned.		Total Fat by Analyses.		No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.	
	lbs.	ozs.	lbs.	ozs.		lbs.	ozs.	lbs.	ozs.
1	1	9 $\frac{1}{2}$	2	1	53	0	14 $\frac{1}{2}$	1	0
4	1	6 $\frac{3}{4}$	2	1	55	0	15	0	15
5	1	4	1	15 $\frac{3}{4}$	58	1	2 $\frac{1}{2}$	1	2 $\frac{1}{2}$
6	2	12	2	10 $\frac{1}{4}$	67	0	8	0	12 $\frac{1}{4}$
7	1	13	2	2	72	1	0	1	1
8	1	11 $\frac{1}{2}$	2	3 $\frac{1}{2}$	73	1	2 $\frac{1}{2}$	1	6
9	1	8 $\frac{1}{2}$	1	15	75	0	12	1	2
11	1	14	2	7	76	1	4	1	5
12	1	1	1	6 $\frac{1}{2}$	78	0	15	1	6
13	1	0	1	13	81	0	12 $\frac{1}{2}$	0	14
14	0	7	1	0 $\frac{1}{2}$	82	1	3	1	2
16	1	10	2	9 $\frac{1}{2}$	83	3	3	3	3 $\frac{1}{2}$
19	1	9	2	1	84	2	7	2	5 $\frac{3}{4}$
20	1	0	1	13	86	0	15	1	3 $\frac{1}{2}$
21	0	7 $\frac{1}{2}$	1	8	87	1	7	withdrawn	
24	2	1	2	2	88	2	8	2	9
25	2	2	2	7	89	1	13	2	7 $\frac{3}{4}$
27	1	12	1	8	90	1	14 $\frac{1}{2}$	1	15 $\frac{1}{4}$
28	2	3 $\frac{3}{4}$	2	6 $\frac{1}{2}$	92	2	12	2	13 $\frac{1}{4}$
29	1	11	2	0	93	2	6 $\frac{1}{2}$	2	6 $\frac{1}{2}$
32	1	3 $\frac{1}{2}$	1	12	94	2	4	2	4
33	2	5 $\frac{1}{2}$	2	7	95	1	5	1	14 $\frac{1}{4}$
34	0	9	1	3	96	2	3	2	1 $\frac{1}{2}$
35	0	11	1	3	97	1	6	1	13 $\frac{1}{2}$
41	1	9 $\frac{1}{2}$	2	1 $\frac{1}{2}$	98	1	15	2	2
43	1	13 $\frac{1}{2}$	2	2	99	2	4	2	8
45	0	12	1	14 $\frac{1}{2}$	101	0	10	0	13 $\frac{3}{4}$
46	1	9	1	11 $\frac{3}{4}$	109	0	15	1	5
47	1	5	1	10	110	1	7 $\frac{1}{2}$	1	7 $\frac{1}{2}$
48	1	6	1	8	111	1	9	1	9 $\frac{1}{2}$
49	1	12	2	0	112	1	13	1	14 $\frac{1}{2}$
50	1	8	2	0					
						94	13 $\frac{1}{2}$	112	11

JERSEYS.

132	1	10 $\frac{1}{2}$	1	8 $\frac{3}{4}$	150	1	5 $\frac{1}{2}$	1	7
134	0	11	0	14 $\frac{1}{2}$	151	1	2 $\frac{3}{4}$	1	1 $\frac{1}{2}$
136	1	11 $\frac{3}{4}$	1	8	152	1	2 $\frac{1}{4}$	1	1
137	1	2	1	0 $\frac{1}{2}$	154	2	0 $\frac{1}{2}$	1	12 $\frac{1}{2}$
138	1	7 $\frac{1}{2}$	1	5	156	1	7 $\frac{3}{4}$	1	8 $\frac{1}{4}$
139	1	3 $\frac{1}{2}$	1	3	157	1	6	1	3
143	2	1	1	12 $\frac{3}{4}$	160	2	9 $\frac{1}{2}$	2	3 $\frac{3}{4}$
145	1	4 $\frac{1}{2}$	1	6	161	1	12	1	6 $\frac{3}{4}$
146	1	9	1	8 $\frac{1}{4}$	162A	1	15 $\frac{1}{4}$	2	11
148	2	2 $\frac{1}{4}$	1	14 $\frac{1}{2}$					
						29	12	28	8

TABLE IV.—COMPARISONS OF CHURNINGS WITH ANALYSES—*continued*.

LINCOLN RED SHORTHORNS.

No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.		No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.	
	lbs.	ozs.	lbs.	ozs.		lbs.	ozs.	lbs.	ozs.
113	1	0	1	3 $\frac{3}{4}$	120	2	7	2	7 $\frac{1}{2}$
115	1	10 $\frac{1}{2}$	1	10	122	1	10 $\frac{1}{2}$	1	12 $\frac{3}{4}$
116	1	4	1	7	125	1	8 $\frac{1}{2}$	1	8 $\frac{1}{4}$
118	3	3 $\frac{3}{4}$	2	15		12	12 $\frac{1}{2}$	13	0 $\frac{1}{2}$

GUERNSEYS.

203	1	6	1	9 $\frac{1}{2}$	221	1	5 $\frac{1}{2}$	1	8
204	2	6	2	2 $\frac{3}{4}$	222	1	8	1	8
205	2	6	2	2	223	1	4 $\frac{1}{4}$	1	5 $\frac{3}{4}$
207	1	11	1	10	224	1	14	1	10 $\frac{1}{2}$
208	2	6	2	4 $\frac{1}{2}$	227	1	6 $\frac{1}{2}$	1	4 $\frac{1}{2}$
209	1	3	1	3	228	1	2 $\frac{1}{2}$	1	1
213	1	12 $\frac{1}{2}$	1	12 $\frac{1}{2}$	230	1	11	1	10 $\frac{1}{2}$
215	0	11	0	10 $\frac{3}{4}$	232	1	3 $\frac{1}{2}$	1	6 $\frac{1}{2}$
218	1	4	1	3 $\frac{3}{4}$	234	1	4	1	7 $\frac{1}{4}$
219	1	2	1	5 $\frac{1}{4}$		28	15	28	14

RED POLLS.

237	1	14	2	1	252	1	0	1	4 $\frac{1}{2}$
239	1	0	1	5 $\frac{1}{2}$	255	1	6	1	9 $\frac{1}{2}$
241	1	5	1	6 $\frac{1}{2}$	257	1	9	1	13 $\frac{1}{2}$
242	2	8	2	5 $\frac{1}{2}$	258	1	15	1	15 $\frac{1}{2}$
244	2	2 $\frac{1}{2}$	2	5 $\frac{1}{2}$	262	1	4	1	10 $\frac{1}{4}$
245	1	15	1	15	268	0	15	1	4
248	1	11	1	15	269	1	3 $\frac{1}{2}$	1	2
250	2	7	2	9 $\frac{3}{4}$	270	1	5	1	8 $\frac{3}{4}$
251	1	9	1	11 $\frac{3}{4}$		27	1	29	15 $\frac{1}{2}$

SOUTH DEVONS.

283	2	6	2	7	287	1	13	1	15 $\frac{1}{2}$
285	1	3 $\frac{1}{2}$	1	8	288	1	10	1	15
286	2	7	2	10 $\frac{1}{2}$		9	7 $\frac{1}{2}$	10	8

AYRSHIRES.

289	2	8	2	8	291	2	2	2	3
						4	10	4	11

TABLE IV.—COMPARISONS OF CHURNINGS WITH ANALYSES—*continued*.

KERRIES AND DEXTERS.

No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.		No. in Catalogue	Weight of Butter Churned.		Total Fat by Analyses.	
	lbs.	ozs.	lbs.	ozs.		lbs.	ozs.	lbs.	ozs.
297	0	11	1	0	312	1	9 $\frac{1}{2}$	1	13
298	1	2 $\frac{1}{2}$	1	2 $\frac{1}{2}$	315	0	8 $\frac{3}{4}$	0	11 $\frac{1}{2}$
302	0	14 $\frac{1}{3}$	1	0 $\frac{3}{4}$	316	0	8	0	13 $\frac{3}{4}$
303	1	1 $\frac{1}{2}$	1	4	317	0	14 $\frac{1}{2}$	1	2 $\frac{1}{2}$
304	1	5 $\frac{1}{3}$	1	7 $\frac{1}{4}$	319	0	15 $\frac{1}{2}$	0	14
305	1	15	2	2	320	1	1	1	3
307	2	1	2	2	322	1	2	1	5
309	1	13	1	14	324	1	3	1	6
310	1	3	1	4	328	0	9 $\frac{1}{2}$	0	12 $\frac{1}{2}$
311	0	11 $\frac{1}{2}$	0	12	330	0	4 $\frac{1}{2}$	0	5 $\frac{1}{2}$
						20	13 $\frac{3}{4}$	24	7 $\frac{1}{4}$

FRIESIANS.

334	1	15	2	6 $\frac{1}{2}$	348	2	1	3	2
335	2	13	3	4	349	3	5	3	7
337	2	4	2	5 $\frac{1}{4}$	357	2	2	2	2 $\frac{1}{2}$
339	1	14	2	2 $\frac{1}{2}$	358	1	11	2	4
342	2	1	2	6 $\frac{1}{2}$	367	1	11	1	11
						21	13	25	3

DEVONS.

274	2	0 $\frac{1}{2}$	2	0 $\frac{3}{4}$	279	1	6	1	7
275	2	0	2	3	280	2	7	2	15 $\frac{1}{2}$
276	2	1 $\frac{1}{2}$	2	5 $\frac{1}{4}$	282	1	10 $\frac{1}{2}$	1	12 $\frac{1}{2}$
						11	9 $\frac{1}{2}$	12	11 $\frac{1}{2}$

TABLE V.—AVERAGE DIFFERENCES BETWEEN CHURNINGS AND
CHEMICAL ANALYSES FROM 1898.

Year	Breed	Churn	Analyses
		Lbs. Butter	Lbs. Fat
1898	Shorthorns	38.92	36.82
1899	"	34.34	32.46
1900	"	35.55	37.87
1901	"	29.05	27.80
1902	"	53.48	55.91
1903	"	30.72	35.92
1904	"	22.98	26.59
1905	"	30.89	30.58
1906	"	31.38	33.59
1907	"	45.14	47.79
1908	"	43.74	49.78
1909	"	35.06	35.91
1910	"	41.62	44.75
1911	"	47.79	48.00
1912	"	61.10	63.85
1913	"	43.01	48.69
1914	"	36.87	39.14
1915	"	32.50	40.15
1919	"	43.86	42.40
1920	"	51.25	52.57
1921	"	94.84	112.69
1907	Lincolnshire Red Shorthorns ...	12.94	12.31
1908	" " " ...	15.79	15.56
1909	" " " ...	14.06	13.48
1910	" " " ...	13.37	13.62
1911	" " " ...	10.16	10.00
1912	" " " ...	11.47	12.00
1913	" " " ...	9.12	8.65
1914	" " " ...	6.44	6.47
1915	" " " ...	3.29	3.16
1919	" " " ...	7.47	7.15
1920	" " " ...	5.37	5.81
1921	" " " ...	12.77	13.01
1898	Jerseys	29.15	27.26
1899	"	23.61	22.54
1900	"	39.75	39.32
1901	"	33.19	31.82
1902	"	43.61	41.03
1903	"	27.04	26.41
1904	"	22.22	22.06
1905	"	24.53	22.44
1906	"	19.56	18.71
1907	"	22.64	—
1908	"	22.25	—
1909	"	37.65	35.89
1910	"	*30.37	30.18
1911	"	27.62	26.18
1912	"	14.39	13.39

* Excluding Nos. 142 and 146.

† Does not include the fat of Jersey Heifers competing in the Tests.

TABLE V.—AVERAGE DIFFERENCES BETWEEN CHURNINGS AND
CHEMICAL ANALYSES FROM 1898—*Continued.*

Year	Breed					Churn	Analyses
						Lbs. Butter	Lbs. Fat
1913	Jerseys	...	...	...	...	29.54	†20.90
1914	"	...	...	...	...	17.44	16.14
1915	"	...	...	...	...	16.16	14.67
1919	"	...	...	...	...	37.44	35.18
1920	"	...	...	...	...	25.06	24.55
1921	"	...	...	...	...	29.75	28.50
1898	Guernseys	...	...	...	...	18.07	8.25
1899	"	...	...	...	...	15.90	5.53
1900	"	...	...	...	...	0.84	11.10
1901	"	...	...	...	...	2.46	11.59
1902	"	...	...	...	...	1.23	1.34
1903	"	...	...	...	...	5.34	6.47
1904	"	...	...	...	...	4.89	4.94
1905	"	...	...	...	...	3.42	3.42
1906	"	...	...	...	...	2.41	1.82
1907	"	...	...	...	...	3.54	3.22
1908	"	...	...	...	...	3.69	3.52
1909	"	...	...	...	...	3.20	3.52
1910	"	...	...	...	...	2.44	2.81
1911	"	...	...	...	...	.87	1.50
1912	"	...	...	...	...	2.31	2.96
1913	"	...	...	...	...	†8.48	7.59
1914	"	...	...	...	...	†4.96	5.28
1915	"	...	...	...	...	10.31	11.08
1919	"	...	...	...	...	23.72	23.66
1920	"	...	...	...	...	21.23	21.62
1921	"	...	...	...	...	28.94	28.87
1898	Red Polls	...	...	...	...	5.04	5.56
1899	"	...	...	...	...	8.48	8.33
1900	"	...	...	...	...	8.98	9.81
1901	"	...	...	...	...	3.07	2.88
1902	"	...	...	...	...	8.36	8.00
1903	"	...	...	...	...	5.01	6.95
1904	"	...	...	...	...	5.39	6.00
1905	"	...	...	...	...	13.42	14.53
1906	"	...	...	...	...	11.39	14.50
1907	"	...	...	...	...	12.53	16.08
1908	"	...	...	...	...	3.21	4.06
1909	"	...	...	...	...	5.09	5.71
1910	"	...	...	...	...	5.12	6.25
1911	"	...	...	...	...	.94	1.08
1912	"	...	...	...	...	1.00	1.31
1919	"	...	...	...	...	16.71	18.83
1920	"	...	...	...	...	15.98	18.89
1921	"	...	...	...	...	27.06	29.98

† Does not include the fat of Guernsey Heifers competing in the Tests.

TABLE V.—AVERAGE DIFFERENCES BETWEEN CHURNINGS AND
CHEMICAL ANALYSES FROM 1898—*Continued.*

Year	Breed					Churn	Analyses
						Lbs. Butter	Lbs. Fat
1910	Ayrshires	...	...	...	...	1.94	1.75
1912	"	...	...	...	...	5.37	5.89
1921	"	...	...	...	...	4.62	4.69
1909	South Devons	...	...	...	...	6.89	7.03
1910	"	...	...	...	...	12.03	13.06
1911	South Devons	...	...	...	...	2.64	3.25
1912	"	...	...	...	...	7.92	8.39
1913	"	...	...	...	...	3.01	3.75
1914	"	...	...	...	...	10.50	11.00
1915	"	...	...	...	...	3.22	4.16
1921	"	...	...	...	...	9.46	10.50
1907	Kerries	...	...	...	...	3.40	3.19
1908	Kerries and Dexters	...	...	...	...	6.89	7.09
1909	Kerries	...	...	...	...	2.75	2.64
1911	"	...	...	...	...	1.21	.96
1913	"	...	...	...	...	5.94	6.10
1919	"	...	...	...	...	4.66	4.64
1920	"	...	...	...	...	11.50	11.48
1921	"	...	...	...	...	18.78	21.96
1919	Dexters	...	...	...	...	5.77	5.58
1920	"	...	...	...	...	3.96	3.84
1921	"	...	...	...	...	2.06	2.5
1914	British Friesians...	...	...	...	...	1.20	1.69
1915	"	...	...	...	...	3.50	4.00
1919	"	...	...	...	...	3.31	3.33
1920	"	...	...	...	...	27.10	29.06
1921	"	...	...	...	...	21.81	25.18
1919	Devons	...	...	...	...	7.92	8.10
1920	"	...	...	...	...	3.94	3.59
1921	"	...	...	...	...	11.58	12.73

BUTTER TESTS—SHORTHORNS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight.	Date of Birth	Date of last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards
							Morn.	Even.	Total			Colour	Quality				
			lbs.		1921		lbs	ozs	lbs	ozs	lbs	ozs					
19	Eustace A. Smith	Cathorpe Seraphina	1301	Nov. 15, 1913	July 14	95	34	828	863	0 1	9	40-32	Good	25-00	5-50	30-50	
20	Eustace A. Smith	Lady 32nd ...	1220	Mar. 22, 1912	Sept. 18	29	23	0 18	0 41	0 1	0	41-00	Good	16-00	—	16-00	
21	E.C. Fairweather	Silverton Sweet Rush	1348	Sept. 9, 1915	Sept. 16	31	30	10 25	0 55	10 0	7 $\frac{1}{2}$	18-66	Pale	7-50	—	7-50	
24	J. A. Beattie ...	Red Rose 11th...	1445	May 2, 1914	Sept. 8	39	26	10 24	8 51	2 2	1	24-78	V. P.	33-00	—	33-00	H.C.
25	Walter Wilson...	Flower of Hathorop 27th Thurnham	1386	May 16, 1916	Sept. 26	21	33	11 27	6 61	1 2	2	28-73	Good	34-00	—	34-00	H.C.
27	Sir Charles Allom	Merry Maid 5th Ringlet 9th	1489	Dec. 28, 1917	Sept. 14	33	27	8 20	3 42	11 1	12	24-39	Pale	28-00	—	28-00	
28	D. Aldridge ...	Hadnock Heath	1372	May 3, 1917	Oct. 3	14	30	3 28	3 58	6 2	3 $\frac{1}{2}$	26-19	Good	33-75	—	33-75	H.C.
29	J. A. Attwater ...	Lady Doreen ...	1198	Oct. 11, 1916	Sept. 6	41	25	11 21	3 46	14 1	11	27-77	Pale	27-00	10	27-10	
32	G. P. Golden ...	Orange Honey ...	1255	Mar. 19, 1917	Sept. 17	30	28	11 27	5 56	0 1	3 $\frac{1}{2}$	45 94	Good	19-50	—	19-50	
33	Jas. H. Ismay ...	Rickerscote Nelly Lee	1301	Mar. 31, 1917	Oct. 2	15	16	11 13	5 30	0 2	5 $\frac{1}{2}$	12-80	Good	37-25	—	37-25	H.C.
34	J. Pierpont Morgan	Thornby Duchess	1062	Aug. 31, 1917	Sept. 30	17	15	10 14	0 29	10 0	9	52-66	Good	9-00	—	9-00	
35	J. Pierpont Morgan	Thornby Duchess	1202	Dec. 17, 1917	Sept. 27	20	19	8 16	10 36	2 0	11	52-54	Pale	11-00	—	11-00	

BUTTER TESTS—SHORTHORNS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight.	Date of Birth.	Date of last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards.
							Morn.	Even.	Total			Colour	Quality				
			lbs.			1921	lbs ozs	lbs ozs	lbs ozs	lbs ozs							
41	J. G. Peel ...	Watercock Rose	1082	Jan. 21, 1917	Sept. 14	1921	33 30	0 24	2 54	2 1	9½ 33-96	V. P.	V. Sft.	25-50	—	25-50	
43	Eustace A. Smith	Longhills Juno...	1280	Oct. 22, 1916	Oct.	3	14 27	0 22	2 49	21 13½	26-87	Good	Good	29-25	—	29-25	
45	A. J. Hollington	Enfield Viola 2nd	1476	May 24, 1917	Oct.	1	16 24	3 22	5 46	8 0	62-00	V. G.	Good	12-00	—	12-00	
46	George	Red Rose 4th ...	1448	Jan. 4, 1917	Oct.	3	14 23	11 19	2 42	13 1	9	V. G.	Good	25-00	—	25-00	
47	F. H. Thornton	Kingsthorpe Raspberry	1278	Aug. 14, 1917	Sept. 13	34 24	14 22	11 47	9 1	5	36-23	Good	Soft	21-00	—	21-00	
48	Alfred Palmer ...	Babraham Convolvulus	1370	Aug. 8, 1916	Aug. 29	49 22	3 17	0 39	3 1	6	28-50	Good	Soft	22-00	90	22-90	
49	Capt. Arnold S. Wills	Strawberry ...	1428	Sept. 28, 1916	Sept. 26	21 29	13 22	10 52	7 1	12	29-80	Good	Good	28-00	—	28-00	
50	Capt. Arnold S. Wills	Thornby Ringlet 3rd	1344	Feb. 5, 1918	Sept. 23	24 27	10 24	5 51	15 1	8	34-62	Good	Good	24-00	—	24-00	
53	Sir Alfred Mond, Bart., M.P.	Combe Bank Rose	1188	Aug. 30, 1918	Aug. 2	76 12	13 12	8 25	5 0	14½	27-93	Good	Good	14-50	—	14-50	
55	Sir Gilbert A. H. Wills, Bart., M.P.	Marian's Grand Daughter	1176	May 23, 1919	Sept. 9	38 14	6 11	13 26	3 0	15	27-93	Pale	Good	15-00	—	15-00	
58	Sir Charles Allom	Mulcaster Honey	1213	Jan. 1, 1919	Sept. 19	28 14	0 11	14 25	14 1	2½	22-37	Good	Good	18-50	—	18-50	
67	W. L. Lea ...	Bertha 29th ...	1204	Dec. 15, 1918	Sept. 25	22 10	11 11	11 22	6 0	8	44-75	Pale	Good	8-00	—	8-00	

BUTTER TESTS—SHORTHORNS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No of Days in Milk	Milk Yield			Butter Yield	Ratio, viz. lbs. Milk to lbs. Butter	Colour and Quality of Butter		No of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards
							Milk Yield					Colour	Quality				
							Morn.	Even.	Total								
			lbs.				lbs	ozs	lbs	ozs	lbs	ozs					
72	Lt.-Col. W. M. Pryor, D.S.O.	Daisy 36th	1202	Oct. 10, 1918	1921 Aug. 27	51 13	10 11	5 24	15 1	0	24.15	Good	Good	16.00	1-10	17-10	
73	Lt.-Col. W. M. Pryor, D.S.O.	Lady Barrington	1232	Feb. 8, 1919	Sept. 14	33 17	8 14	11 32	3 1	2½	22.75	Good	Soft	18.50	—	18-50	
75	Mrs. Fitz-Hugh	Sybil 33rd	1210	Dec. 13, 1918	Sept. 19	28 17	3 13	10 30	13 0	12	41.08	Good	Good	12.00	—	12-00	
76	Mrs. C. B. Robinson	Crillette	1290	Dec. 16, 1918	Sept. 13	34 18	0 16	8 34	8 1	4	27.60	Good	V. G.	20.00	—	20-00	
78	Eustace A. Smith	Longhills Melody	1104	Sept. 1, 1918	July 31	77 19	10 16	11 36	5 0	15	38.73	Good	V. G.	15.00	3-70	18-70	
81	George Twentyman	Thurnham Sheila	1216	Nov. 2, 1918	...	—	18	8 13	6 31	14 0	40.02	Good	Good	12.50	—	12-50	
82	J. G. Peel	Melody 40th	1156	Dec. 7, 1918	Sept. 26	21 15	2 13	11 28	13 1	3	24.26	Good	Good	19.00	—	19-00	
83	J. W. Astley	Southfield Lady	1446	May, 1915	Sept. 25	22 27	8 23	5 50	13 3	3	15.94	Good	Soft	51.00	—	51-00	2nd Prize
84	J. W Astley	Southfield Duchess	1468	—	Sept. 26	21 27	8 26	2 53	10 2	7	22.10	Good	V. G.	39.00	—	39-00	H.C.
86	F. Brazier	Granboro' Vernona	1312	—	—	—	26	6 21	14 48	4 0	51.46	Pale	V.Sft.	15.00	—	15-00	
87	J. M. Goodman	Ringlet	1460	1916	Aug. 7	71 16	6 14	13 31	3 1	7	20.82	Pale	Good	23.00	—	23-00	
88	Nathan Hardman	Fair Oak Beauty	1270	1916	Oct. 3	14 30	14 27	3 58	1 2	8	23.22	Good	Soft	40.00	—	40-00	H.C.

BUTTER TESTS—SHORTHORNS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Born	Date of last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., lbs Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards
							Morn.	Even.	Total			Colour	Quality				
			lbs.				lbs	ozs	lbs	ozs	lbs	ozs					
89	Sir William Hicking	Golden Sovereign	1270	1914	1921 July 15	94.42	0.33	14.75	14 1	13	41.86	V. G.	V. G.	29.00	5.4	34.40	H.C.
90	James H. Ismay	Florence 2nd ..	1516	July 26, 1915	Sept. 23	24.22	14.18	2.41	0 1	14½	21.50	Good	V. G.	30.50	—	30.50	
92	J. F. Nelson	Lady Nelson ..	1205	1915	Oct. 1	16.32	0.25	11.57	11	2	12	20.97	Exlt.	44.00	—	44.00	4th Prize
93	Mrs. C. B. Robinson	Milkmaid 2nd ..	1514.	April 3, 1918	Sept. 19	28.30	0.26	13.56	13 2	6½	23.61	Fair	Soft	38.50	—	38.50	H.C.
94	John Ford ..	Tulip ..	1198	1915	Sept. 30	17.29	2.22	3.51	5 2	4½	22.80	Good	Good	36.00	—	36.00	H.C.
95	J. L. Shirley ..	Martha ..	1311	—	Sept. 29	18.20	11.17	14.38	9 1	5	29.38	Good	Good	21.00	—	21.00	
96	J. L. Shirley ..	Pretty Maid 2nd	1520	—	Sept. 23	24.28	5.25	3.53	8 2	3	24.45	Pale	Good	35.00	—	35.00	H.C.
97	J. L. Shirley ..	Althorpe Mary	1365	—	Sept. 15	32.24	0.22	3.46	3 1	6	33.59	Pale	V. Sft.	22.00	—	22.00	
98	Walter Wilson ..	Primrose 5th ..	1284	—	Oct. 4	13.27	2.23	8.50	10 1	15	26.12	Good	Soft	31.00	—	31.00	H.C.
99	Walter Wilson ..	Dairymaid ..	1396	—	Sept. 18	29.33	2.29	2.62	4 2	4	27.66	Good	Soft	36.00	—	36.00	H.C.
101	Sir Mark Collett, Bart.	Strawberry 2nd	1112	Aug. 25, 1918	Sept. 12	35.20	14.18	5.39	3 0	10	62.70	Pale	Good	10.00	—	10.00	
109	A. Stapleton & Sons, Ltd.	Brooklands Dairymaid	1346	Nov. 15, 1918	Sept. 22	25.22	2.18	11.40	13 0	15	43.53	Good	Good	15.00	—	15.00	

BUTTER TESTS—SHORTHORNS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz. Ibs. Milk to Ibs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of	Awards.
							Morn.	Even.	Total			Colour	Quality				
							Ibs. ozs	Ibs. ozs	Ibs. ozs	Ibs. ozs							
110	A. Stapleton & Sons, Ltd.	Brooklands	1188	Sept. 23, 1918	1921 Sept. 19	28 17	10 14	14 32	81	7½	22-12	Good	V. G.	23-50	—	23-50	
111	J. L. Shirley	Buttercup Primrose Maid...	1324	—	Oct. 4	13 20	14 18	5 39	31	9	25-08	Good	Good	25-00	—	25-00	
112	Walter Wilson...	Lady Mary	1102	Dec. 6, 1918	Sept. 28	19 19	21 5	6 34	81	13	19-03	V. G.	Good	29-00	—	29-00	
113	Lt.-Col. Sir A. G. Weigall, K.C.M.G.	Sudbrook 129 C.	1638	June 28, 1914	June 10	129 20	6 21	5 41	111	0	41-68	Good	Soft	16-00	8 0	24-00	
115	Stanley Blundell	Bendish Nancy	1472	July 31, 1911	Aug. 10	68 24	2 22	6 46	81	10½	28-07	Pale	Good	26-50	—	26-50	
116	Stanley Blundell	Bendish Pearl	1321	Aug. 21, 1916	Sept. 22	25 27	10 22	11 50	51	4	40-25	Pale	V. Sft.	20-00	—	20-00	
118	John Evens & Son	Burton 5th Killingham	1386	April 20, 1915	Sept. 12	35 37	13 33	6 71	33	3½	22-00	Pale	Good	51-75	—	51-75	1st Prize
120	John Evens & Son	Burton Suttie 2nd	1354	May, 1914	June 24	115 34	3 24	14 59	112	7	24-23	Pale	Good	39-00	7-50	46-50	3rd Prize
122	John Evens & Son	Burton Amy 8th	1416	Nov. 21, 1916	Sept. 10	37 27	14 22	13 50	111	10½	30-60	Good	Soft	26-50	—	26-50	
125	C. E. Scorer	Lenborough Poppy	1426	Mar. 11, 1916	Sept. 9	38 19	0 18	6 37	61	8½	24-40	Fair	Soft	24-50	—	24-50	

BUTTER TESTS—SHORTHORNS—Continued.

No. in Catalogue.		Name of Animal.	CHURNING—TIME AND TEMPERATURE.				
			Time		Temperature		
			Churning began	Churning finished	Duration of Churning	Dairy	Cream and Churn	Buttermilk, when churning finished
				Minutes	Degrees	Degrees	Degrees
1	Lady of the Manor	9 23 a.m.	10 12 a.m.	49	66	52	65
4	Hadnock Mignon Daisy	9 27 "	10 4 "	37	66	52	62
5	Lily Wild Eyes	9 35 "	10 32 "	57	66	52	60
6	Vain Lucy 5th	9 49 "	10 28 "	39	66	52	61
7	Maud Moore	9 45 "	10 19 "	34	66	52	62
8	Red Rose	9 48 "	10 27 "	39	66	52	60
9	Cottisbrooke Rachel 2nd	10 0 "	10 45 "	45	66	52	62
11	Wild Queen 29th	10 4 "	11 0 "	56	67	52	62
12	Ruby 6th	10 22 "	11 17 "	55	68	52	62
13	Barrington Cranford 38th	10 38 "	11 25 "	47	69	52	62
14	Gilmorton Gem	10 45 "	11 0 "	15	69	52	58
16	Propriety 12th	10 15 "	10 32 "	17	68	52	58
19	Cathorpe Seraphina	10 30 "	10 45 "	15	69	52	62
20	Lady 32nd	10 38 "	11 13 "	35	69	52	60
21	Silverton Sweet Rush	10 58 "	12 10 "	72	69	52	66
24	Red Rose 11th	11 9 "	11 52 "	43	71	52	60
25	Flower of Hathrop 27th	11 12 "	11 40 "	28	71	52	62
27	Thurham Ringlet 9th	12 38 p.m.	1 16 p.m.	38	74	50	64
28	Merry Maid 5th	12 7 "	12 20 "	13	73	50	57
29	Hadnock Heath	12 17 "	1 2 "	45	73	50	62
32	Lady Doreen	11 58 a.m.	12 59 p.m.	61	73	50	62
33	Orange Honey	12 7 p.m.	12 31 "	24	73	50	59
34	Rickerscote Nelly Lee	11 35 a.m.	11 57 a.m.	22	72	50	57
35	Thornby Duchess 5th	11 56 "	12 45 "	49	73	50	64

BUTTER TESTS—SHORTHORNS—Continued.

CHURNING—TIME AND TEMPERATURE.							
No. in Catalogue.	Name of Animal.	Time			Temperature.		
		Churning began	Churning finished	Duration of Churning	Dairy	Cream and Churn	Buttermilk, when churning finished
				Minutes	Degrees	Degrees	Degrees
41	Watercrock Rose ...	12 30 p.m.	1 12 p.m.	42	74	50	61
43	Longhills Juno ...	2 45 "	3 20 "	35	77	50	59
45	Enfield Viola 2nd ...	12 40 "	1 20 "	40	74	50	62
46	Red Rose 4th ...	2 43 "	3 0 "	17	77	50	60
47	Kingsthorpe Raspberry 4th	2 45 "	3 20 "	35	77	50	62
48	Babraham Convolvulus ...	2 59 "	3 19 "	20	75	50	59
49	Strawberry ...	2 52 "	3 32 "	40	76	50	59
50	Thornby Ringlet 3rd ...	2 56 "	3 51 "	55	76	50	62
53	Combe Bank Rose ...	2 49 "	3 21 "	32	77	50	60
55	Marian's Grand Daughter	3 8 "	3 35 "	27	75	50	59
58	Mulcaster Honey ...	3 15 "	3 35 "	20	75	50	60
67	Bertha 29th ...	3 2 "	3 27 "	25	75	50	62
72	Daisy 36th ...	3 11 "	3 33 "	22	75	50	62
73	Lady Barrington ...	3 17 "	3 45 "	28	75	50	61
75	Sybil 33rd ...	3 27 "	4 12 "	45	75	50	62
76	Crillette ...	3 40 "	4 10 "	30	75	50	58
78	Longhill's Melody ...	3 45 "	4 24 "	39	75	50	64
81	Thurnham Sheila ...	3 44 "	4 16 "	32	75	50	62
82	Melody 40th ...	3 37 "	4 10 "	33	75	50	60
83	Southfield Lady ...	4 8 "	4 22 "	14	75	50	60
84	Southfield Duchess ...	3 51 "	4 8 "	17	75	50	58
86	Granboro' Vernona ...	3 50 "	4 43 "	53	75	50	62
87	Ringlet ...	3 45 "	4 12 "	27	75	50	62

BUTTER TESTS—SHORTHORNS—Continued.

CHURNING—TIME AND TEMPERATURE.							
No. in Catalogue.	Name of Animal.	Time			Temperature.		
		Churning began	Churning finished	Duration of Churning	Dairy	Cream and Churn	Buttermilk, when churning finished
				Minutes	Degrees	Degrees	Degrees
88	Fair Oak Beauty	4 13 p.m.	5 8 p.m.	55	75	50	64
89	Golden Sovereign	3 59 "	4 32 "	33	75	50	62
90	Florence 2nd	4 32 "	4 55 "	23	74	50	60
92	Lady Nelson	4 21 "	4 37 "	16	75	50	60
93	Milkmaid 2nd	4 26 "	5 3 "	37	75	50	59
94	Tulip	4 20 "	4 39 "	19	75	50	56
95	Martha	4 12 "	4 51 "	39	75	50	59
96	Pretty Maid 2nd	5 13 "	5 40 "	27	73	50	58
97	Allthorpe Mary	4 27 "	5 3 "	36	74	50	60
98	Primrose 5th	5 16 "	5 45 "	29	73	50	60
99	Dairymaid	5 4 "	5 45 "	41	73	50	62
101	Strawberry 2nd	4 28 "	5 23 "	55	74	50	64
109	Brooklands Dairymaid	4 45 "	5 37 "	52	74	50	62
110	Brooklands Buttercup	5 15 "	5 45 "	30	73	50	60
111	Primrose Maid	5 37 "	6 0 "	23	73	50	60
112	Lady Mary	5 18 "	5 40 "	22	73	50	57
113	Sudbrook 129 C.	5 21 "	5 58 "	37	73	50	62
115	Bendish Nancy	5 27 "	6 10 "	43	73	50	62
116	Bendish Pearl 5th	5 37 "	6 0 "	23	73	50	60
118	Burton Fillingham	5 33 "	5 48 "	15	73	50	60
120	Burton Suttie 2nd	10 34 a.m.	11 5 a.m.	31	73	50	58
122	Burton Amy 8th	10 45 "	11 24 "	36	72	50	60
125	Lenborough Poppy	10 42 "	11 26 "	44	70	50	60

BUTTER TESTS—JERSEYS.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight.	Date of Birth	Date of last Calf	No. of Days in Milk	Date of last Service	Milk Yield in 24 hrs.	Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter.	Colour	Colour and Quality of Butter	No of Points for Butter	No. of Points for period of Lactation	Total Number of	Awards.
			lbs.		1921		1921	lbs ozølbs ozø								
132	Lord Roundway	Happy Girl ...	798	Feb. 4, 1918	Aug. 21	57	—	37 12 1	101 10 1	22-79	Pale	Good	26-50	1-70	28-20	
134	Major The Hon. H. Pearson	Plymouth Lady	960	May 31, 1916	June 1	138	July 19	23 70 11	34-09	Pale	Poor	Poor	11-00	9-80	20-80	
136	Sir G. Stanley White, Bart.	Ursanne Belle ...	836	Jan. 26, 1918	April 9	191	Aug. 9	31 12 1	11 1/4	18-30	Good	Good	27-75	4-00	31-75	Certificate.
137	A. E. Bond ...	Frontiers Maid...	848	Feb. 7, 1917	April 23	177	Aug. 11	9 71 2	17-27	Pale	Good	Good	18-00	8-00	26-00	
138	A. E. Bond ...	Laddie's Daisy...	724	Dec. 24, 1917	July 13	96	—	25 10 1	7 1/2	17-44	Good	V. G.	23-50	5-00	28-50	
139	A. E. Bond ...	Cowslip Hussy...	842	April 21, 1918	April 28	172	Sept. 24	23 71 3 1/2	19-23	Pale	Good	Good	19-50	4-00	23-50	
143	R. W. Carson ...	Elegant Finance	854	Aug. 17, 1912	May 2	168	June 27	28 82 1	13-81	Pale	V. G.	V. G.	33-00	12-00	45-00	3rd Prize.
145	S. G. Hough ...	Golden Gamboline 2nd	782	Nov. 2, 1916	Aug. 6	72	Sept. 27	38 21 4 1/2	29-75	V. G.	V. G.	V. G.	20-50	3-20	23-70	
146	Mrs. Evelyn ...	Limberlost ...	802	Feb. 25, 1917	Aug. 7	71	—	27 21 9	17-36	Good	V. G.	V. G.	25-00	3-10	28-10	
148	Col. Gisborne ...	Dock Weed ...	910	Mar. 16, 1916	Mar. 9	222	May 9	35 42 2 1/4	16-46	V. G.	V. G.	V. G.	34-25	12-00	46-25	2nd Prize.
150	W. D. Knight ...	Rapkyus Pavillions Lass	914	Mar. 4, 1917	May 31	139	Aug. 5	30 12 1 5 1/4	23-15	Good	Good	Good	21-25	9-90	31-15	Certificate.
151	W. D. Knight ...	Distressed Lady	802	April 26, 1915	April 4	196	July 3	21 12 1 2 1/4	18-56	Good	Good	Good	18-75	12-00	30-75	

BUTTER TESTS—JERSEYS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Milk	Date of last Service	Milk Yield in 24 hrs.	Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation.	Total Number of Points	Awards
											Colour	Quality				
152	J. H. N. Roberts	Amelia Agnes ...	lbs. 794	May 23, 1918	1921 Aug. 4	74	1921 —	lbs ozs 24 6 1	2 1/2 21 3/4	21-36	Pale	Good	18-25	3-40	21-65	
154	Mrs. Rudd	Meadow Vale Pride	858	April 1, 1918	June 16	123	Sept. 13	38 10 2	0 1/2 19-16	V. G.	V. G.	V. G.	32-25	8-30	40-55	Certificate.
156	L. E. Tubbs	Queen Rosebay	824	July 22, 1918	July 9	100	—	26 4 1	7 3/4 17-68	V. G.	V. G.	V. G.	23-75	5-00	28-75	
157	L. E. Tubbs	Duchess	788	Jan. 14, 1918	June 6	133	Aug. 31	22 13 1	6 16-59	Good	Good	V. G.	22-00	9-30	31-30	Certificate.
160	R. Bruce Ward...	Prudence 4th Marsellaise ...	790	Jan. 19, 1917	June 13	126	Aug. 26	35 12 2	9 1/2 13-78	Pale	Pale	V. G.	41-50	8-60	50-10	1st Prize.
161	R. Bruce Ward...	Maytham Pauline	778	July 20, 1917	June 15	124	Aug. 18	33 10 1	12 19-21	Pale	Pale	Good	28-00	8-40	36-40	Certificate.
162a	Mrs. Hayes Sadler	Golden Fleece 9th	965	June 8, 1914	July 30	79	—	34 13 1	15 1/2 17-82	Good	Good	Good	31-25	3-90	35-15	Certificate.
164	Lord Roundway	Cloister	826	April 27, 1919	Sept. 27	20	—	29 13 1	2 3/4 25-44	Good	Good	Good	18-75	—	18-75	
175	Mrs. Rudd	Fantastic	821	Nov. 27, 1918	July 28	81	Sept. 13	24 8 1	11 3/4 14-12	Pale	Pale	V. G.	27-75	4 10	31-85	Certificate
176	G. Cross	Yellow Wort	800	Feb. 20, 1919	May 16	154	July 31	33 10 1	13 1/2 18-39	V. G.	V. G.	V. G.	29-25	11-40	40-65	Certificate.
180	R. Bruce Ward...	Piquant	828	April 21, 1919	April 20	180	Aug. 10	30 15 1	15 1/2 15-71	Pale	Pale	V. G.	31-50	8-00	39-50	Certificate.
197	J. H. N. Roberts	Happy Maid	719	Feb. 6, 1919	May 3	167	July 1	27 4 1	8 3/4 17-61	Pale	Pale	V. G.	24-75	12-00	36-75	Certificate.

BUTTER TESTS—JERSEYS—Continued.

No. in Catalogue	Name of Animal	CHURNING—TIME AND TEMPERATURE.				
		Time		Temperature		
		Churning began	Churning finished	Duration of Churning	Dairy	Cream and Churn
				Minutes	Degrees	Degrees
132	Happy Girl ...	9 25 a.m.	10 10 a.m.	45	66	60
134	Plymouth Lady ...	9 30 "	9 50 "	20	66	56
136	Ursanne Belle ...	9 30 "	10 5 "	35	66	56
137	Frontiers Maid ...	9 35 "	10 5 "	30	66	58
138	Laddie's Daisy ...	9 40 "	10 30 "	50	66	60
139	Cowslip Hussy ...	9 42 "	10 30 "	48	66	60
143	Elegant Fiance ...	9 48 "	10 10 "	22	66	58
145	Golden Gamboline 2nd	10 0 "	10 50 "	50	68	60
146	Limberlost ...	10 25 "	11 45 "	80	70	58
148	Dock Weed ...	10 35 "	11 8 "	33	70	59
150	Rapkyns Pavillions Lass	10 46 "	11 10 "	24	69	57
151	Distressed Lady ...	10 50 "	11 15 "	25	70	57
152	Amelia Agnes ...	11 0 "	11 35 "	35	71	61
154	Meadow Vale Pride ...	11 6 "	11 36 "	30	71	58
156	Queen Rosebay ...	11 20 "	12 20 p.m.	60	72	64
157	Duchess Prudence 4th ...	11 40 "	12 12 "	32	73	62
160	Marseillaise ...	11 50 "	12 15 "	25	73	58
161	Maytham Pauline ...	11 55 "	12 30 "	35	73	58
162a	Golden Fleece 9th ...	12 5 p.m.	12 30 "	25	73	58
164	Cloister ...	12 10 "	12 25 "	15	73	62
175	Fantastic ...	12 10 "	12 40 "	30	73	60
176	Yellow Wort ...	2 40 "	3 10 "	30	77	60
180	Piquant ...	2 50 "	3 20 "	30	77	61
197	Happy Maid ...	2 55 "	3 20 "	25	77	61

BUTTER TESTS—RED POLLS.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards
							Morn.	Even.	Total			Colour	Quality				
			lbs.				lbs ozs	lbs ozs	lbs ozs	lbs ozs							
237	Sir A. E. Bowen, Bart.	Sudbourne Adela	1294	May 22, 1913	1921 June 27	112 28	6 21	6 49	12 1	14	26-53	Good	Good	30-00	7-20	37-20	H.C.
239	Major J. S. Courtauld, M.C.	Harsfield Rosie	1086	May 23, 1916	May 29	141 18	11 16	8 35	3 1	0	35-18	Pale	Soft	16-00	8-00	24-00	
241	Major J. A. Morrison, D.S.O.	Necton Gem	1209	Jan. 6, 1914	July 4	105 17	3 14	6 31	9 1	5	24-47	Good	V.G.	21-00	6-50	27-50	
242	M. C. Pilkington	Harsfield Ruth...	1108	Feb. 18, 1916	Aug. 29	49 24	5 20	8 44	13 2	8	17-92	Good	Good	40-00	9-00	49-00	1st Prize.
244	Capt. J. O. Sherrard	Framlingham Red Russett	1070	Nov. 24, 1915	Sept. 26	21 28	6 22	5 50	11 2	2 1/2	23-50	Good	Good	34-50	—	34-50	H.C.
245	Joseph Watson	Gressenhall Molly	1354	July 7, 1912	Mar. 9	22 21	5 23	0 44	5 1	15	22-87	Good	Soft	31-00	—	31-00	
248	Sir A. E. Bowen, Bart.	Gressenhall Margate	1008	Oct. 24, 1917	Aug. 8	70 19	5 14	13 34	2 1	11	20-22	Pale	Good	27-00	3-00	30-00	
250	Lt.-Col. W. Elwes	Kirtou Fryer	1050	Sept. 17, 1917	Sept. 18	29 31	8 26	2 57	10 2	7	23-64	Pale	Good	39-00	—	39-00	2nd Prize.
251	Lt.-Col. W. Elwes	Tuesnoad Jennifer	1132	July 15, 1917	Sept. 19	28 17	8 18	2 35	10 1	9	22-80	Good	Good	25-00	—	25-00	
252	Major J. A. Morrison, D.S.O.	Dallinghoo Ruby 3rd	923	Feb. 8, 1917	July 20	89 19	6 13	5 32	11 1	0	32-68	Good	Good	16-00	—	16-00	
255	A. Carlyle Smith	Ashmoor Pence	1162	Jan. 7, 1917	Aug. 13	65 24	14 17	2 40	0 1	6	29-90	V. P.	Good	22-00	2-50	24-50	

BUTTER TESTS—RED POLLS—Continued.

No. In Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter.		No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards	
							Milk Yield					Colour	Quality					
							Morn.	Even.	Total									
			lbs.				lbs	ozs	lbs	ozs	lbs	ozs						
257	Joseph Watson	Kitchener's Daffodil 3rd	1246	Mar. 29, 1917	1921 Aug. 27	51	23	0 16	3 39	3 1	9	25-08	Good	Good	25-00	1-10	26-10	
258	Joseph Watson	Gressenhall Lavender	1176	Sept. 23, 1916	Aug. 7	71	23	2 19	0 42	2 1	15	21-74	Poor S'mpl.	Poor S'mpl.	31-00	3-10	34-10	H.C.
262	N. A. Heywood	Ashmoor Viola...	1032	Jan. 15, 1919	Sept. 5	42	15	5 13	13 29	2 1	4	23-30	Pale	Soft	20-00	20	20-20	
268	A. Carlyle Smith	Ashmoor Sunbeam	1133	Sept. 6, 1918	Aug. 24	54	18	0 15	13 33	13 0	15	36-06	V. P.	V. Sft.	15-00	1-40	16-40	
269	A. Carlyle Smith	Ashmoor Winter	1058	Jan. 1, 1919	Aug. 28	50	18	0 13	11 31	11 1	33	26-0	Poor S'mpl.	Poor S'mpl.	19-50	1-00	20-50	
270	David Trembath	Tending Vera ...	1090	May 1, 1919	Oct. 2	15	20	11 16	5 37	0 1	5	28-19	Good	Soft	21-00	—	21-00	

BUTTER TESTS—OTHER BREEDS.

No. In Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards.				
							Morn. lbs ozs/lbs	Even. ozs/lbs	Total ozs/lbs			Colour	Quality								
203	H.R.H. Duchess of Albany	Trequean Lady 2nd	lbs. 1118	July 20, 1915	1921 Feb.	24	35	15	10	11	27	5	1	6	19-86	V. G.	Soft	22-00	8-00	30-00	H.C.
204	Mrs. R. C. Bainbridge	Godolphin Pansy	1217	Sept. 20, 1907	Aug. 27	51	26	0	21	2	47	2	2	6	19-84	Good	Good	38-00	1-10	39-10	£3 Prize.
205	Mrs. R. C. Bainbridge	Daisy 3rd of Les Maux-Marquis	1161	June 4, 1913	Sept. 14	33	18	10	18	6	37	0	2	6	15-57	V. G.	V. G.	38-00	—	38-00	£2 Prize.
207	Mrs Jervoise ...	Fanny du Foulon 22nd	1166	July 3, 1911	May 26	144	20	8	14	11	35	3	1	11	20-85	Good	Good	27-00	4-00	31-00	H.C.
208	Mrs. Jervoise ...	Lady's Maid 2nd of Ville Au Roi	1060	April 3, 1915	Sept. 25	22	31	0	25	8	56	8	2	6	23-78	Good	Soft	38-00	—	38-00	Res.
209	Parsons & Thomas	Rooksbury Charlotte	940	Nov. 7, 1913	Aug. 21	57	16	6	12	10	29	0	1	3	24-42	V. G.	Soft	19-00	1-70	20-70	
213	W. & R. Wallace	Lynchmere Primula 2nd	1172	May 30, 1916	Sept. 7	40	19	2	16	3	35	5	1	12½	19-82	Good	V. Sft.	28-50	—	28-50	
215	Viscount Astor...	Lottie of Goodnestone 4th	966	April 16, 1917	July 18	91	9	2	8	2	17	4	0	11	25-09	Good	V. Sft.	11-00	5-10	16-10	
218	Mrs. Jervoise ...	Vena 2nd of the Vauxbelets	826	Jan. 25, 1918	Sept. 17	30	15	2	11	2	26	4	1	4	21-00	Good	Good	20-00	—	20-00	
219	Mrs. Jervoise ...	Mildred de Herriard	936	Nov. 6, 1917	May 22	148	15	10	8	14	24	8	1	2	21-77	Good	Good	18-00	10-80	28-80	H.C.
221	G. P. Sanday ...	Downe Lanes Beauty 2nd	882	Sept. 2, 1917	Aug. 13	145	17	3	13	10	30	13	1	5½	22-93	V. G.	V. G.	21-50	10-50	31-50	H.C.
222	J. W. Towler ...	Rananculus 32nd	868	Jan. 7, 1917	June 4	135	15	2	13	3	28	5	1	8	18-87	Good	V. G.	24-00	—	24-00	

BUTTER TESTS—OTHER BREEDS—Continued.

No in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of	Awards				
							Morn.	Even.	Total			Colour	Quality								
223	J. W. Towler ...	Wadlands Ruby	lbs. 740	Aug. 8, 1917	1921 Sept. 13	34	15	6	14	11	30	11	4½	23-46	Good	20 50	—	20-50			
224	W. F. Trumper...	Damaris of Bigard 2nd	837	Jan. 26, 1917	Oct. 4	13	21	0	16	5	37	5	14	19-90	Good	30-00	—	30-00	H.C.		
227	O. Portman Rubeck	Fanny of Tregouning	763	Mar. 17, 1919	June 7	13	21	12	14	10	13	23	11	11	6½	16-84	V. G.	22-50	9-20	31-70	H.C.
228	O. Portman Rubeck	Valencia Lavender	876	June 17, 1919	Aug. 10	68	13	5	11	8	24	13	1	2½	21-45	Good	18-50	2-80	21-30		
230	J. B. Body ...	Lynchmere Rosy	944	Aug. 12, 1918	Mar. 20	21	16	5	12	10	28	15	1	11	17-14	V. G.	27-00	4-00	31-00	H.C.	
232	W. F. Trumper...	Fleurette of Donnellerie	856	Mar. 14, 1919	Aug. 13	65	13	8	10	10	24	21	3½	19-79	Good	19-50	2-50	22-00			
234	W. Holly & Sons	Tolworth Lassie	948	Dec. 10, 1918	Sept. 20	27	15	11	12	13	28	8	1	4	22-80	Good	20-00	—	20-00		

BUTTER TESTS—OTHER BREEDS.

No. In Catalogue	Exhibitor.	Name of Animal.	Live Weight	Date of Birth	Date of Last Calf	No. of Days in Milk	Milk Yield			Butter Yield.	Ratio, viz, lbs Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter.	No. of Points for Lactation.	Total Points.	Awards.
							Morn.	Even.	Total			Colour	Quality				
							lbs ozs lbs ozs lbs ozs lbs ozs										
274	R. A. Clarke & Sons	Lady 1st	...1202	Feb 27, 1913	1921 Sept 26	21 26	2 22	10 48	12 2	0 1/2	24-0	V. G.	V. G.	32-50	—	32-50	£2 Prize.
275	John H. Chick...	Cherry 3rd	...1380	April 1, 1911	Sept. 13	34 28	0 18	6 46	6 2	0	23-18	Good	Good	32-00	—	32-00	H.C.
276	John H. Chick...	Wynford	1086	Dec. 23, 1915	Sept. 16	31 22	8 16	14 39	6 2	1 1/2	18-20	Good	V. G.	33-50	—	33-50	£3 Prize.
279	W. G. Busk	Laburnum Suffragette 1st...	1353	Feb. 1, 1913	May 30	145 18	2 14	13 32	15 1	6	23-95	Pale	Soft	22-00	10-00	32-00	H.C.
280	W. G. Busk	Stratton Tottie	1237	Feb. 2, 1911	Sept. 28	19 27	11 25	0 52	11 2	7	21-61	Good	Good	39-00	—	39-00	H.C.
282	N. D. Lupton	Chalmington	988	1918	Sept. 6	41 13	11 20	2 33	13 1	10 1/2	20-16	Good	Good	26-50	10	26-60	
283	W. E. Brooking	Charm Milkmaid 2nd	...1768	Dec. 7, 1915	Sept. 29	18 26	11 23	2 49	13 2	6	20-97	Good	V. G.	38-00	—	38-00	
285	W. L. Hosking & Sons	Fentongollan Buttercup	1501	Jan. 31, 1917	Aug. 1	77 14	5 13	13 28	21	3 1/2	23-07	Good	V. G.	19-50	3-70	23-20	
286	Walter Hunt	Milkmaid 4th	...1574	May 7, 1912	May 24	146 32	2 25	10 57	12 2	7	23-69	Good	Soft	39-00	10-60	49-60	£3 Prize.
287	Walter Hunt	Netton Lily	...1748	Mar. 1, 1914	July 27	82 20	5 14	10 34	15 1	13	19-27	V. G.	Good	29-00	4-20	33-20	
288	George Wills	Daffodil	...1662	April 20, 1916	Aug. 17	61 20	10 17	14 38	8 1	10	23-69	Good	V. G.	26-00	2-10	28-10	

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue	Exhibitor.	Name of Animal.	Live Weight	Date of Birth	Date of Last Calf	No. of Days in Milk	Milk Yield			Butter Yield.	Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter.	No. of Points for Lactation.	Total Number of Points.	Awards.	
			lbs.				Morn.	Even.	Total	lbs ozs lbs ozs lbs ozs		Colour	Quality					
289	Robert Dickie ...	Jean ...	966	1916	1921 Sept. 3	44	25	14	21	8 47 6 2	8	18.95	Good	V. G.	40.00	40	40.40	£3 Prize.
291	H. W. B. Crawford	Meg ...	1116	1915	Sept. 23	35	25	6	20	6 45 12 2	2	21.52	V. G.	V. G.	34.00	—	34.00	
297	S. J. Brown ...	Duv Time	928	April 2, 1912	May 6	164	15	2	8	6 23 8 0	11	34.18	Good	Good	11.00	12.00	23.00	
298	S. J. Brown ...	Gort Curley 6th	864	Jan. 16, 1913	July 21	210	7	21	15	10 36 12 1	2 1/2	31.78	Good	Good	18.50	6.80	25.30	
302	L. Harrison & Co., Ltd.	Coquet Hebe ...	788	Feb. 17, 1918	June 14	156	12	3	10	3 22 6 0	14 1/2	24.68	Good	Good	14.50	8.00	22.50	
303	L. Harrison & Co., Ltd.	Coquet Eve ...	973	May 2, 1915	July 29	80	15	13	12	2 27 15 1	1 1/2	25.54	Good	Good	17.50	4.00	21.50	
304	Laurence Currie	Minley Winnie ...	885	Oct. 22, 1917	Aug. 31	47	17	0	14	2 31 2 1	5 1/2	23.16	Good	V. G.	21.50	70	22 20	
305	J. W. Towler ...	Wadlands Buttermilk	861	1912	Aug. 20	58	24	11	21	2 45 13 1	15	23.64	V. G.	V. G.	31.00	1.80	32.80	£2 Prize.
307	J. W. Towler ...	Flora of Carton	842	Mar. 23, 1917	Aug. 31	47	24	11	18	3 42 14 2	1	20.78	Good	V. G.	33.00	70	33.70	£3 Prize.
309	J. W. Towler ...	Wyresdale Clover	852	1908	May 13	157	23	8	14	6 37 14 1	13	20.89	Good	Good	29.00	—	29.00	H. C.
310	Bertram W. A. Watney	Gort Countess ...	878	Feb. 21, 1916	July 11	98	13	11	10	11 24 6 1	3	20.52	Good	Good	19.00	5.80	24.80	

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of Last Calf	No. of Days in Milk		Milk Yield		Butter Yield	Ratio, viz. lbs Milk to lbs Butter	Colour and Quality of Butter		No. of Points for 100 lbs of Butter	No. of Points for Lactation.	Total No. of Points.	Awards.		
						Morn	Even.	Total	Colour			Quality							
										lbs	ozs		lbs	ozs	lbs	ozs			
311.	Capt. Nelson Zambra, M.C.	Castle Lough Hannah	792	April 18, 1917	1921 May 31	139	9	13	7	2 16	15 0	11 1/2	23-56	Fair	V. Sft.	11 50	9 90	21-40	
312.	Capt. Nelson Zambra, M.C.	Walton Lanky 2nd	884	July 16, 1912	Aug. 28	50	26	3	16	8 42	11 1	9 1/2	26-78	Good	Good	25-50	1-00	26-00	
315.	L. Harrison & Co., Ltd.	Mangerton Dewdrop 4th	722	Feb. 4, 1919	Aug. 30	48	9	0	6	10 15	10 0	8 1/2	28-57	Good	Good	8 75	80	9-55	
316.	L. Harrison & Co., Ltd.	Lady Blarney Sloe	658	April 16, 1919	Sept. 10	37	10	10	0	20 10	0	8	41-25	Good	Good	8-00	—	8-00	
317.	Laurence Currie	Minley Martha...	639	Dec. 23, 1918	Aug. 21	57	10	2	7	14 18	0 14 1/2	19-86	Good	V. G.	14-50	1-70	16-20		
319.	J. W. Towler ...	Wadlands Daisy	726	Jan. 10, 1919	Sept. 13	34	11	0	9	5 20	5 0	15 1/2	20-96	Pale	Good	15-50	—	15-50	
320.	J. W. Towler ...	Vaddy Owenreagh	840	April 13, 1919	Sept. 26	21	11	3	10	5 21	8 1	1	20-23	Good	Good	17-00	—	17-00	
322.	J. W. Towler ...	Rosebud of Carton	704	Mar. 10, 1919	Aug. 19	59	12	0	12	5 24	5 1	2	21-61	Pale	Good	18-00	1-90	19-90	
324.	Lady Kathleen Hare	Gort Peach 9th...	766	Feb. 10, 1913	April 10	190	15	13	11	6 27	3 1	3	22-89	Pale	Good	19-00	12-00	31-00	£3 Prize.
328.	Mrs. H. J. Nutt	Fillongley Favourite	796	1914	May 9	161	6	11	6	6 13	1 0	9 1/2	22-00	Good	Soft	9-50	12-00	21-50	
330.	Mrs. H. J. Nutt	Fillongley Farola	602	Oct. 23, 1917	May 31	139	5	6	4	8 9	14 0	4 1/2	35-11	Good	Good	4-50	9-9	14-40	

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth.	Date of Last Calf	No. of Days in Milk			Milk Yield			Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter.	No. of Points for Lactation.	Total No. of Points.	Awards.		
						Morn.	Even.	Total	lbs ozs lbs ozs	lbs ozs	Colour.			Quantity.							
334	A. & J. Brown...	Hedges Dutch Gossip	1286	July 15, 1916	1921 April 20	180	34	5	27	0	61	5	1	15	31-64	Good	Soft	31-00	12-00	43-00	H.C.
335	A. & J. Brown...	Hedges	1318	Nov. 13, 1913	Sept. 28	19	45	14	35	3	81	1	2	13	28-80	Good	V. Sft.	45-00	—	45-00	H.C.
337	Ethelbert	Friesland Queen Froukje 3rd ...	1477	June 14, 1913	Mar. 27	204	35	3	26	2	61	5	2	4	27-25	Good	Soft	36-00	12-00	48-00	£2 Prize.
339	Ethlebert	Dorney Billah ...	1428	Feb. 3, 1915	June 22	117	25	14	19	5	45	3	1	14	24-06	Good	Good	30-00	7-70	37-70	H.C.
342	G. Holt-Thomas	Brooklands Pride	1544	1910	Aug. 27	51	35	2	31	5	66	7	2	1	32-21	V. G.	Soft	33-00	1-1	34-10	H.C.
348	James Russell ...	Felhampton Susan	1416	Oct. 3, 1915	July 5	104	38	3	28	0	66	3	2	1	36-84	V. P.	Good	33-00	6-4	39-40	H.C.
349	W. & R. Wallace	Bladen Early ...	1462	June 20, 1914	Oct. 4	14	41	3	39	8	80	1	1	3	24-33	Good	Soft	53-00	—	53-00	£3 Prize.
357	Capt. R. G. Buxton	Pettygards	1466	Nov. 30, 1916	Sept. 17	30	29	0	25	6	54	6	2	2	25-58	Fair	V. Sft.	34-00	—	34-00	H.C.
358	A. & J. Brown...	Moss Peggy ...	1278	Sept. 26, 1916	Sept. 13	34	29	14	22	13	52	1	1	11	31-22	Good	Soft	27-00	—	27-00	
367	A. Burnham ...	Attimore Mercia	1097	Dec. 4, 1918	Aug. 20	58	21	14	20	2	42	0	1	11	24-88	V. G.	V. G.	27-00	1-80	28-80	

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue.	Name of Animal.	CHURNING—TIME AND TEMPERATURE.				
		Time		Temperature		
		Churning began	Churning finished	Duration of Churning	Dairy	Cream and Churn
				Minutes	Degrees	Degrees
203	Trequan Lady 2nd	10 25 a.m.	10 46 a.m.	21	73	59
204	Godolphin Pansy	10 48 "	11 4 "	16	70	58
205	Daisy 3rd of Les Maux-Marquis ...	10 40 "	11 4 "	24	70	58
207	Fanny du Foulon 22nd	10 56 "	11 16 "	20	70	57
208	Lady's Maid 2nd of Ville au Roi ...	11 0 "	11 20 "	20	70	56
209	Rooksbury Charlotte	10 48 "	11 10 "	22	70	54
213	Lynchmere Primula	10 55 "	11 9 "	14	70	60
215	Lotie of Goodstone 4th	10 48 "	11 8 "	20	70	58
218	Vena 2nd of the Vauxbelets	10 57 "	11 20 "	23	70	56
219	Mildred de Herriard	10 58 "	11 27 "	29	70	58
221	Downe Lauder Beauty 2nd	11 4 "	11 37 "	33	70	55
222	Ranunculus 32nd	11 15 "	11 43 "	28	70	58
223	Wadlands Ruby	11 15 "	11 41 "	26	70	57
224	Damaris of Bigard 2nd	11 25 "	11 56 "	31	70	57
227	Fanny of Fregonning	11 26 "	12 15 p.m.	49	70	60
228	Valencia Lavender	11 45 "	12 7 "	22	71	58
230	Lynchmere Rosy	11 54 "	12 20 "	26	72	58
232	Fleurlette of Donnellene	11 58 "	12 28 "	30	72	56
234	Tolworth Lassie	11 37 "	11 56 a.m.	19	71	58

BUTTER TESTS—OTHER BREEDS—Continued.

CHURNING—TIME AND TEMPERATURE.									
No. in Catalogue.	Name of Animal.	Time				Duration of Churning	Temperature		
		Churning began	Churning finished	Minutes	Dairy		Cream and Churn	Buttermilk, when churning finished	
									Degrees
274	Lady 1st	3 35 p.m.	4 5 p.m.	30	75	50	58		
275	Cherry 3rd	3 12 "	3 40 "	28	75	50	59		
276	Wynford Laburnum	3 24 "	3 37 "	13	75	50	58		
279	Suffragette 1st	3 0 "	3 25 "	25	75	50	62		
280	Stratton Tottic 5th	3 5 "	3 45 "	40	75	50	60		
282	Chalmington Charm	3 20 "	3 55 "	35	75	50	56		
283	Milkmaid 2nd	4 30 "	5 0 "	30	74	50	58		
285	Pentogollan Buttereup	3 30 "	4 5 "	25	75	50	58		
286	Milkmaid 4th	3 37 "	4 0 "	23	75	50	56		
287	Netton Lily	3 45 "	4 14 "	29	75	50	57		
288	Daffodil ...	3 38 "	4 7 "	29	75	50	58		
289	Jean ...	4 33 "	5 1 "	32	74	50	58		
291	Meg ...	4 1 "	4 20 "	19	75	50	57		
297	Duv Time	3 56 "	4 9 "	13	75	50	57		
298	Gort Curly 4th	3 50 "	4 20 "	30	75	50	58		
302	Coquet Hebe ...	4 7 "	4 42 "	37	75	50	62		
303	Coquet Eve ...	4 35 "	5 22 "	47	74	50	63		
304	Minley Winnie ...	4 17 "	4 52 "	35	74	50	60		
305	Wadlands Buttermilker	4 30 "	4 58 "	28	74	50	57		
307	Flora of Carlton	4 46 "	5 5 "	19	74	50	58		
309	Wyresdale Clover ...	4 37 "	5 5 "	18	74	50	58		
310	Gort Countess 9th	4 50 "	5 10 "	20	74	50	60		

BUTTER TESTS—OTHER BREEDS—Continued.

CHURNING—TIME AND TEMPERATURE.							
No. in Catalogue.	Name of Animal.	Time			Temperature.		
		Churning began	Churning finished	Duration of Churning	Dairy	Cream and Churn	Buttermilk, when churning finished
				Minutes	Degrees	Degrees	Degrees
311	Castle Lough Hannah	5 0 p.m.	5 15 p.m.	15	73	50	60
312	Walton Lanky 2nd	5 11 "	5 50 "	33	74	50	58
315	Mangerton Dewdrop 4th	4 52 "	5 15 "	23	74	50	62
316	Lady Blarney Sloe	5 19 "	5 58 "	39	74	50	62
317	Minley Martha	5 8 "	5 40 "	32	74	50	60
319	Wadlands Daisy	5 21 "	5 48 "	27	74	50	60
320	Vaddy Owenreagh	5 19 "	5 36 "	17	74	50	59
322	Vaddy Mourne 3rd	5 13 "	5 40 "	17	74	50	62
324	Gort Peach 9th	2 32 "	3 5 "	33	74	50	60
328	Fillongley Favourite	2 42 "	3 0 "	18	74	50	57
330	Fillongley Farola	2 25 "	3 10 "	45	74	50	64
334	Hedges Dutch Gossip	2 50 "	3 19 "	29	75	50	62
335	Hedges Friesland Queen	2 40 "	3 0 "	20	74	50	58
337	Hedges Froukje 3rd	2 16 "	2 47 "	31	74	50	58
339	Dorney Billah	2 45 "	3 6 "	21	74	50	58
342	Brooklands Pride	2 25 "	3 0 "	35	74	50	58
348	Felhampton Susan	12 57 "	1 48 "	51	74	50	62
349	Bladen Early	2 5 "	2 35 "	30	74	50	56
357	Pettygards Masseuse	12 52 "	1 25 "	33	74	50	60
358	Moss Peggy	2 33 "	2 51 "	18	74	50	60
367	Attimore Mercia	1 55 "	2 40 "	45	74	50	60

THE POULTRY SECTION.

By JOSEPH PETTIPHER, Woodway House, near Banbury.

IN my notes on this section last year I referred to the various difficulties that had to be overcome by the Committee owing to the changed post-war conditions. The lessons learned at the 1919 Show were obvious advantages for 1920. Things generally were in a better and more normal condition this year, the railways had also become more reasonable in attitude and consented to assist in the sorting of the baskets at the lift, much to the appreciation of Mr. Kirk, who specially mentions this in his report.

One feature of the 1921 Show is, I believe, unique in Poultry Show annals. It will be remembered that in 1919, when compiling the schedule, it was a matter of doubt whether anything approaching a pre-war entry would be forthcoming. The result proved quite the reverse. Again, the entry in 1920 was so increased that in 1921 the Committee deemed it advisable to insert a rule in the schedule to the effect that entries might be closed earlier than the fixed date if the numbers received had become such as to fill all the space available. This actually happened; the unique incident above referred to being the consequence, viz., that the Secretary had to close down the entries pre-date and, I believe, somewhere between 500 and 600 entries were returned. It has since been quite a frequent experience with me to meet exhibitors who lamented the absence of their "certain winners," owing to their entries having been returned. However, there was no alternative; as it was, the available space was taxed to its utmost possible capacity. The exhibition of high class poultry is increasing yearly by leaps and bounds—especially at the classic events—despite the abnormal railway rates. The separation of this section from the other part of the Dairy Show, which has been suggested by some people, is as out of the question here, as it has been decided to be at Bingley Hall, Birmingham, where a similarly heavy entry has also created somewhat similar conditions. The only course for the present appears to be to limit the entries to the number it is possible to stage. Even with the entry accepted, the alleys were narrow, and when the crowds matured one frequently heard grumbles as to the impossibility of getting a decent look at the birds. A word of praise is due to Mr. R. Kirk, whose experience as chief steward enabled him to make the best possible arrangement of the pens and alterations in the planning which economised space and advanced general convenience. His report gives certain interesting figures as to the staff necessary to carry out the poultry and pigeon section, viz., 28 extra hands engaged for basket carrying and work of a similar class, 12 checkers to check

in and out, 12 men from Spratts Patent, and on the Tuesday 20 Fanciers gave voluntary services as Judges' Stewards. It is also satisfactory to note that this resulted in the cards being up by one o'clock on judging day, and that everything worked smoothly to his satisfaction.

There is just one point which I should like to draw attention to, where I think it might be possible to effect an alteration which would greatly facilitate the work of penning. As one of the Committee, who took duty on the Monday night when the exhibits were arriving, it came under my personal observation. I refer to the congestion of the gangways by standholders who were busily engaged erecting their various structures and getting in large exhibits or standing on step-ladders to erect signs, &c. I saw on several occasions a trolley load of baskets held up by such things as those above named for considerable periods. Many of the stands exhibit such things as large poultry houses which take considerable time to get in place, and it was a common occurrence for the penners to have to wait a long time, or abandon for a time the possibility of getting past and do the best they could elsewhere, and if it were possible to introduce some regulations which would enforce the earlier staging of these obstacles I am sure it would be a great advantage to the prompt and proper penning of the exhibits.

A question also arises which, to my mind, the Committee would do well to consider regarding the excessively heavy entry in two or three popular breeds of the moment, *e.g.*, the Single Comb Rhode Island Red Cockerels numbered 119, Pullets 132; White Wyandotte Cockerels 79, Pullets 102; Light Sussex Cockerels 61, Pullets 114, &c. Possibly they may not be as large again, as a number of entrants may be deterred in future by the almost "luck" chances of a number of the best birds, but if these sizes continue I think something should be done to relieve judges of an almost impossible task and to give exhibitors a fair chance for their entry fee. Perhaps it might be possible, if entries have again to be refused, to apply the "Closure" specially to these classes, or as an alternative to divide them by some such means as balloting the numbers into two sections. These suggestions are, however, merely hints for something to improve the present state of those inordinately large classes. This again raises another point. I have always held that Show Executives should consider the provision of *variety* in the exhibits on behalf of those ordinary visitors who pay at the gate and, in many cases, tire of seeing row after row of one colour, to them practically all alike, but to whom a Houdan, Poland, or other variety would be interesting. For this reason I question the wisdom of cutting out all classes which do not reach a certain number of entries. A sprinkling of all breeds adds to the attractions of the Show and is worth considering apart from the actual amount received in entries. Coming to the so-called Utility Classes, which were last year reduced to three for pullets only, it will be remembered that these were introduced at the special

request of the N.U.P.S. Since then the Society has succeeded in arranging a London Show to itself, so that seeing congestion has to be considered, and bearing in mind the great similarity in many cases between the birds in these and exhibition classes, it seems to me that a pen space of from 250 to 300 pens might be secured by the discontinuance of this section. The foregoing suggestions may, or may not be feasible, but anyhow they are made by one who has at heart a desire to do anything he can to assist and justify his position as one of the poultry committee, and who has endeavoured during the Shows to note any points he thinks worth suggesting for consideration.

Briefly reviewing the exhibits in order of catalogue, Table Poultry were of more than ordinary quality, but not strong numerically. Eggs were a grand lot and I noticed how much they continually attracted attention. Dorkings still appear mainly in the hands of a few old admirers, though there were one or two new names in the lists. The year's feature was the great improvement noticeable in Silver Grey Cockerels which made an unusually fine display of quality and colour. In Langshans the "Moderns" were cancelled, but the "Croads" came up well, both in quality and numbers; Brahmas and Cochins generally just about held their own. the only noticeable advance towards the favour of old days being in the Light Brahmas, which are apparently once more regaining a considerable amount of favour. Sussex were, as might be expected, most numerous in the Light Variety, but I quite agree with the Judge that a large majority of the exhibits failed to reasonably approach the correct standard which was much more emphasised in the Brown and Speckled classes. Reds were very fair in this respect, but taking the classes as a whole the Speckled appeared to me to stand out both for quality and type. Mr. Cree, one of the Sussex Judges, suggests that the Sussex Selling Classes should be divided, placing the Light in two classes by themselves and the other colours in two other classes. I think this is worth considering. Faverolles were good in quality, but not very very numerous. The new blue variety secured second and third prizes. I shall expect a larger entry in this breed in 1922, and I also hope to see the Houdan Classes revived. Campines showed a decided post-war advance in quality and were fair in numbers, the Silvers predominating. Those old favourites the Gold and Silver Laced Wyandottes, appear to retain a strong hold on general favour. The Judge, Mr. J. M. Philipson, comments in his report on the exceptional quality of the Gold Cockerels and the Silver Laced pullets. The Gold Cockerel, shown by Mr. C. Calvert, won the medal for best Wyandotte and was reserve for the Society's Champion Medal. In White Wyandottes I was glad to note that the Judge recognised type and quality in preference to mere size. Excessively large birds frequently fail in type and are not true Wyandottes, and these were rightly discounted accordingly, this fault, though not entirely, applying particularly to the Cockerels.

Black Wyandottes were strong classes containing plenty of

quality. This breed is evidently making headway both in the general type of the exhibits and in public favour.

Columbian Wyandottes were more strongly contested than in previous years. The type generally shown is becoming more correctly Wyandotte, and breeders appear to have wisely considered this in preference to mere size. Extreme size in any of the colours is not a true Wyandotte characteristic.

Mr. J. Wilkinson reports that the Black Orpingtons were the best lot he has ever judged, either at the Dairy or any other Show. Many of those that had to be content with cards were good enough to win at many a show. In Whites, the Cockerels were not an exceptionally typical lot, but the Pullets were excellent almost throughout the class, and Mr. Procter's winner was a gem of almost ideal perfection. Buff Orpingtons, with a few notable exceptions, were not, I thought, as good as they used to be if one considered them as a class. Blues were neither numerous nor particularly striking. This breed does not seem to make headway.

The Rhode Island Reds, as already mentioned, were abnormally large classes. The quality generally was excellent, and when it came to dividing up the six selections for the six prizes in the Single Combs, and the five selections for the five prizes in the Rosecomb classes, the selection must have given the Judges a difficult task. Once again I thought the advantage of type lay with the Rosecombs when the classes were taken collectively. The question of certain exhibits having been artificially prepared by being dyed, and for which they had been passed over by the Judge, created considerable comment and if this practice is persisted in it is hoped Judges will, in future, adopt stronger measures and absolutely disqualify, thereby giving the Dairy Council and the Poultry Club the opportunity to proceed.

Orloffs were not large classes. The winning exhibits were typical and well placed, but the breed does not appear to make the headway which at one time in pre-war days appeared probable. Anconas were large classes with a decided improvement on former years, especially over post-war shows. We are getting more to the original mottled colour, instead of the two dark birds at one time so prevalent, but in many cases there is room for improvement in leg colour.

Frizzles were good. This breed is becoming popular very rapidly—people are learning that it is not purely an ornamental variety, but a really good layer and table fowl. Its unique feathering appears to have led many to think it was merely a novelty of no commercial value.

The Old English Game always holds its own year after year for general quality, the exceptional specimens changing often from one colour to another in a way calculated to increase interest. Messrs. Heath's Black-Red Cockerel is a bird that will make history, and the Spangled Cockerel, shown by Mr. Telford, was also specially worthy of note. Minorcas are evidently regaining a popularity they at one

time enjoyed, but which has dropped a good deal of late years. Lord Dewar's winners in both classes well deserved their position and in fact I thought I never saw these classes better handled than they were here by Mr. Millen. Andalusians are decidedly improving. Mr. Lambert has judged them on many occasions and he says the general evenness of colour and quality of lacing was better than he ever saw before. Personally, I was particularly struck with the general quality of the first and second prize Cockerels shown by the Rev. Dr. Johnstone.

In Leghorns, the classes generally were about up to the average. Plymouth Rocks produced one of the finest lots of the barred variety ever seen at a Dairy Show, and Mr. John Taylor handled them remarkably well. The Buff, too, were a good lot generally, the first prize pullet being particularly noticeable. The White Rocks stood out in the "Any other Colour" classes. I think this breed deserves separate classification and that the classes would fill. Sicilian Buttercups were very fair, but mixed classes. I don't know if this breed would stand dividing, but it must be difficult to judge when the colours compete together. Silkies were much as usual, the attractive feature being a very taking looking buff, rather an unusual colour, shown in splendid form by Mrs. Fentiman.

Indian Game came up well, especially as this was one section where I met with several "weeping and lamenting" over the return of their entries. The master hand of Mr. W. Brent left no room for criticism and the 60 birds on view made a grand show. Redcaps were few in numbers, the winning cockerel stood out in a not very representative collection of either sex. The A.O.V. classes were large and well filled and contained an attractive variety of unclassified breeds. The Breeding Pens were a feature of the Show, and in Waterfowls the Runners and Buff Orpingtons appeared to attract most attention and were most largely entered.

Rouens and Aylesburies were about as usual numerically, but of particularly good quality. Black East Indians are looking up and likely to be once again a favoured breed. The large A.O.V. classes might be relieved of the Khaki-Campbells which would doubtless fill as well separately as they did at Birmingham.

And where are the Pekins nowadays?

I think Mr. Kingwell's suggestion that the variety class for ducks should be restricted to young birds is a very good one.

Geese were not numerous, but of really good quality. Turkeys came up well, especially considering the present heavy railway rates.

The Bantam section was well supported and, as usual, was one of the sections most favoured by a large number of visitors and fanciers.

REPORT ON THE PIGEON SECTION.

By W. S. BROCKLEHURST, Grove House, Bedford.

The forty-third Annual Show on October 18th, 19th, 20th, and 21st, 1921, was a record show, beating all previous years by 12 entries, there being a grand total of 3,272 exhibits, which is the largest number of pigeons ever staged at a Dairy Show. The general quality of the birds was even better than last year, and the competition much keener. All the best birds in the country meet at this great event, for the honour of winning the splendid prizes and cups offered for competition by the British Dairy Farmers' Association. The Pigeon Section is undoubtedly a great attraction to the general public, judging by the numbers that pass along the pigeon aisles during the Show. The Modena Classes were the best filled. This speaks well for such a new breed, which has, however, become very popular with the public, no doubt on account of the general appearance of smartness. The entries totalled no less than 468, the next biggest section being Dragoons, with an entry of 438.

The winners of the principal trophies offered by the Association for competition this year were as follows:—

The Gold Medal offered by the Association for the best Pigeon in the Show, bred in 1921, was awarded to Pen 101, Messrs. Dukes Bros., Blue Fantail Cock, the reserve to Pen 374, Dr. Wm. Royden's Norwich Cropper Cock.

The Jones Memorial Trophy for the best old bird in the Show was awarded to Pen 483, Dr. C. H. Tattersall's Blue Dragoon Cock. This was the best Dragoon that has been seen for many years. The Reserve was Pen 1307, Mr. A. A. Gatty's English Owl Cock.

The Esquilant Challenge Trophy was awarded to Pen 1019, Mr. R. B. Fais June's Black Self-Tumbler Cock, the Reserve being Pen 2407. Messrs. Heaton and Driver's Black Magpie Hen.

The Fulton Trophy was awarded to Pen 987, Messrs. Hardcastle Bros., Short-Faced Tumbler Cock, the Reserve being Pen 1376, Mr. W. A. Smith's English Owl Cock.

Before describing each variety in detail, I should like to point out to the Fancy the great debt of gratitude and thanks they owe to the Chairman of the Poultry and Pigeon Committee, Mr. S. Palgrave-Page. His untiring energy and labour in organising the carrying on of the work in connection with this section, as well as that of the Poultry, for the benefit of all concerned, and also the welfare of the exhibits, was no light task, especially as things are to-day.

Fantails numbered 181 in 10 classes, an increase of 32 on last year's total in the same number of classes. They were a better lot

than last year, being described by the Judge as a very grand lot, the Blues in particular. It was in this colour and variety that the winner of the Association's Gold Medal for the best young bird in the Show was found, being Dukes Bros.' young Blue Cock, Pen 101, a beautiful pigeon, also winner of the Association's Silver Medal for the best young Fantail.

Pouters numbered only one more than last year, but were of better quality, the winner being an excellent bird and the second close up to it. There were in the one class only 13 entries, which is not much encouragement for an extension of the classes in the future.

Pigmy Pouters.—The interest in this charming variety still seems on the increase, there being the largest entry yet attained at this Show, namely 128 entries in 12 classes, as compared with 111 in 1920. There is a distinct advance in type in most colours, the exception, perhaps, being the Blue classes. Breeders seem to be earnestly endeavouring to reduce size without losing the ideal pouter type. The Reds and Yellow classes are making the most headway at the present, and it was considered the best collection as a whole in these colours yet staged at this important event. Mr. F. W. Miller with a grand pigeon, Pen 217, carried off the Challenge Cup and the Association's Silver Medal for the best young bird.

Norwich Croppers were down 15 entries below last year's 76 in 5 classes, there being only 61 in 4 classes this year. The standard of quality was, however, well above the average, while a great improvement was seen in the Blacks as compared with last year. The Bronze Medal of the Association for the best young Norwich Cropper went to Dr. Wm. Royden's exhibit in Class 27, Pen 374, a young hen, which was also reserve for Gold Medal offered by the Association for the best pigeon in the Show bred in 1921.

Carriers.—In the six classes provided for this variety there were 69 entries, an increase of six on last year—an improvement, but still far below the numbers seen at this Show before the war. The Carrier Club's Adult Challenge Cup was awarded to Mr. W. S. Brocklehurst, Pen 397, Black Cock, and the Association's Bronze Medal for the best Carrier also fell to the same bird, which was considered by the Judge, Mr. C. S. Palmer, to be the best Carrier living to-day, being perfect in formation, texture, and size of wattle, and standing well. The old class was a very good one and the yearling class a grand lot. The Any Other Colours Class was not so good as of late years, but on the whole the Carriers were a very fine lot.

Barbs.—Seven entries in one class only was a considerable fall on last year's 20 in three classes, but the few birds penned were a good lot, consisting of yearling and young birds only. If the Barb Fanciers do not look to their entries a bit better, the classes for this fine old breed may drop out of the Dairy Show Schedule altogether.

Dragoons as usual turned up in force, both in number and quality, there being 439 exhibits in 32 classes, an increase of 42, though there were two classes less than last year. In the Adult Classes the Judge pointed out the very high standard of merit and condition of most of the birds. Condition, always an important point in this variety, was particularly noted, due no doubt to the good season. It was in this section that the winner of the Jones Trophy was found in Pen 483, Dr. C. H. Tattersall's wonderful Blue Cock, a grand pigeon. In the young bird classes the Blues did not quite come up to the quality of previous years, being long in feather, standing tall, and showing very narrow bars. The Chequers have improved considerably, and it was in this section that the winners were found for the George Cotton Challenge Cups and the Medals of the Association by Dr. C. H. Tattersall's Cock and Mr. and Mrs. A. H. Wood's Hen. The other colours came up well and some fine birds were penned by well-known Fanciers.

Short-faced Tumblers.—This section shows an improvement both in type and quality, there being 85 entries in seven classes as against 82 in nine classes last year, and now that this breed has started to make headway again we hope to see this charming little pigeon more generally kept and shown more often. Messrs. Hardcastle Bros. were awarded the Fulton Trophy and Association's Medal for Pen 987, a wonderful little bird.

Long-faced Tumblers.—The section as a whole was an improvement on last year's for both quality and type, though there were in 19 classes 312 entries as compared with 361 in 28 classes in 1920. Many good specimens were handicapped through being still in the moult, and several others were not in proper show condition. Blacks were the best all round lot, standing away from the other colours in type and quality combined with substance. Some of the birds are still too large, which is a great pity, and quite a number failed in beaks and frontal. The young Blacks showed a considerable improvement in many points on the adult Reds. In the Adult Classes there were several very typical birds. The young birds, especially young cocks, were very poor; there were, however, one or two very good young hens. Breeders of both Reds and Yellows are not paying enough attention to true type.

White are advancing rapidly in type and quality, and it was very noticeable in the young birds, these being far ahead of the adults. The Blues and Chequers are making steady progress and the colour of many of the exhibits was splendid. Several specimens were shown with tip-tilted beaks which is as bad a fault as being down-faced. Here again the young birds are an improvement on the adults in type and general Tumbler characteristics. In the other varieties of Long-faced Tumblers there were several very fine specimens, and in particular a Silver Bald Cock and a young Red Beard Hen,

by far the best seen for many years. The Muffs and Saddles were also a good lot, some very fine birds being penned.

The Esquilant Trophy and the Association's Silver Medal for the best young Tumbler went to Pen 1019, Mr. R. B. Fais June's Black Self Cock.

English Owls shown in the same number of classes as last year—7—totalled 86. There is a general improvement being made in the type and quality of this variety, and some very good specimens were on view. It was in this variety that the Reserve for the Jones Trophy, Pen 1307, Mr. A. A. Gatty's Cock, was found, and the Reserve for the Fulton Trophy also, Pen 1376, Mr. W. A. Smith; this pigeon won the Association's Bronze Medal for the best young English Owl.

Foreign Owl.—Though not so many classes as last year, the entry was nearly as good, there being 120 in 11 classes as against 129 in 16 classes last year. The quality was much better than usual, especially in the Any Other Colour classes, which were a wonderful lot and took some placing on the part of the Judge. Good Whites seem to be getting scarce, and the condition of several good birds told against them. The winner in the Any Other Colour Adult Class, a grand pigeon, was claimed for £50. The Association's Silver Medal for the best young Foreign Owl went to Pen 1450, Class 114, Mr. W. A. Sherrett.

Turbits had 74 entries in eight classes, as compared with 80 entries in a similar number of classes last year, and showed an improvement in quality over former years. Several classes are still poor in numbers compared with the good entries seen at the Dairy Show years ago.

Archangels showed a slight decrease in numbers compared with last year.—52 penned in four classes as against 57 in the same number of classes. The quality was good and up to the usual standard.

Modenas, as at the 1920 Show, were again by far the biggest Pigeon section, numbering no less than 461 birds in 32 classes, as compared with 405 in 30 classes last year, a wonderful increase which I predicted in last year's Pigeon Report would in all probability take place. This variety has lost none of its popularity and, in fact, is still growing in favour amongst Fanciers. The birds shown this year were a wonderful lot, and quite the best collection yet staged at the Dairy Show.

Type generally has improved, there being fewer narrow-chested and mean-headed birds.

Blue Gazzi numbered no less than 94 in four classes, a grand lot, but still a little short of some of the other colours in head, quality and type.

Black Gazzi came up very well and some typical birds of the breed were penned. Bronzes and Reds have much improved,

especially the Reds, these showed more of the true Modena type than has been seen before. There is no doubt that the truest type is now found in the Black Bronzes and Reds. The Schietti classes were well filled and much improvement is to be seen in them, several breeders having of late paid more attention to the head qualities, which frequently fail in these beautifully marked pigeons. We hope soon to see the Schiettis as good in head and neck properties as the Gazzi.

The winners of the Modena Challenge Cups and Association's Silver Medals were as follows:—

Cup, Best Old Gazzi Cock, Pen 1755, Mr. W. S. Brocklehurst—Black Cock.

Cup, Best Old Gazzi Hen, Pen 1777, Mr. W. S. Brocklehurst, —Black Cock.

Cup, Best Young Gazzi Cock, Pen 1684, Rev. T. C. Wild—Blue Cock.

Cup, Best Young Gazzi Hen, Pen 1796, W. F. Holmes—Black Hen.

Cup, Best Old Schietti Cock, Pen 1912, Mr. W. F. Holmes—Blue Barred.

Cup, Best Old Schietti Hen, Pen 1915, Mr. W. S. Brocklehurst—Blue Barred.

Cup, Best Young Schietti Cock, Pen 1926, Mr. W. S. Brocklehurst—Blue Barred.

Cup, Best Young Schietti Hen, Pen 1973, Mr. A. C. Tattersall's Red Laced.

Association's Silver Medal, Best Gazzi, Pen 1796, Mr. W. F. Holmes—Black Hen.

Association's Silver Medal, Best Schietti, Pen 1917, Mr. A. C. Tattersall's Red Laced Hen.

Jacobins showed a falling off from last year in numbers, there being only 57 in six classes, as compared with 71 in the same number of classes at the last Show, but the quality was an advance upon last year, particularly in the young birds. The best class as regards uniformity in quality was that for young Reds. All the birds were in better condition this year than is usual at the Dairy Show, it being held a bit early in the year for this breed.

The Association's Bronze Medal went to Pen 2110, Mr. H. Coolston's Black Cock.

Runts were fewer than last year, there being only 10 in the class, but they were all well up to the average both in size and general condition, and a very good lot.

Nuns showed a great improvement on last year's entries both in numbers and quality. There were 84 in the three classes, as compared with 64 in the same number of classes last year. The two young classes were exceptionally good in number and quality.

Some of the grand young birds of last year's Show now did well in the adult class and the competition was very keen.

Oriental Frills.—This section showed a great improvement in numbers on previous Shows, and an increase over last year's entry of 32, there being 153 in 14 classes; but, unfortunately, with the exception of one or two classes, the quality of the birds was not equal to last year's entry.

The Association's Silver Medal as also the Oriental Frill Club Challenge Cup were awarded to Pen 2251, Mr. J. Robert's Turbitan Cock.

Magpies only numbered 16 in nine classes, as compared with last year's entry of 125 in 11 classes. Again an improvement in the type was noticeable, as the objectionable heavy body cloddiness is being bred out, which will tend to greatly improve the look of the modern Magpie. The Association's Silver Medal fell to Pen 2407, Messrs. Heaton and Driver's Black Hen, she being also Reserve for the Esquilant Trophy.

Marthams brought together 20 exhibits in two classes, there being a number of different exhibitors from those showing last year. The two classes were fairly well filled with this, the latest innovation as a fancy pigeon breed. Type and quality varied, though several of the winners were attractive birds; nevertheless, more uniformity in type and general character is still to be desired.

Tipplers.—This was a new section put in at the request of the Tippler Fanciers, but the result of only 24 entries in three classes does not give much encouragement to the British Dairy Farmers' Association Pigeon Committee to insert the classes again at their next Show. The few birds that were penned were of the best quality, particularly nice in head, style, and shape, and rich in colour.

Antwerps.—The four classes provided for this variety brought together 47 entries, an improvement on last year of 10 birds. The classes were filled with birds of great merit, quality being well maintained all through.

Show Homers.—In the 12 classes provided this year as last, there were 195 entries as against 202 last year. The general quality was not quite so good, in the adult section nearly all the birds having the same failing; viz., coarseness of wattle. In most respects the young birds were better this year than last. The Show Homers Cup went to Pen 2603, Mr. G. R. Hartley's Chequer Hen, and the Association's Silver Medal for the best young bird to Pen 2734, Mr. Fred. G. Barnard's young Cock.

Racing Pigeons did not come up to last year's entry, being 40 short in the same number of classes, namely 248 in six classes, but

the exhibits exceeded in average merit the entries on any previous occasion, while the absence of birds of a spurious type was very noticeable, I mean birds obviously bred for showing purposes, which one used to see occasionally amongst the entries, with an entire absence of those characteristics of the genuine racing pigeon which are so pleasing to the real racing pigeon Fancier.

The Victory Cup for the best Racing Pigeon was awarded to Pen 2795, Messrs Swan and Watson; the same pigeon also won the Association's Silver Medal.

Exhibition Flying Homer.—Eight classes this year brought together 101 entries, as compared with 97 in six classes last. The quality was good and most of the classes contained some very typical specimens, though we notice several good birds had to stand down through being hardly through the moult. Red Chequers have improved considerably and are nearer the ideal than those on view last year. The Association's Silver Medal for the best bird went to Pen 3030. Mr. H. F. Fore's Red Chequer Hen.

Ptarmigans.—Two classes were again provided for this new breed and brought together 24 entries. We were pleased to note that several new names appeared in this year's catalogue, showing that several Fanciers are taking up this very charming variety, though the best specimens seem still to be in the same exhibitors' hands. There was a varied amount of type amongst the birds shown.

Lavender Ice.—The one class this year brought together 18 entries, as compared with 12 at last Show. They were a grand lot, undoubtedly the best lot yet seen at the Dairy Show, and of wonderful quality.

Any other Variety.—This one class brought together 18 entries as against 14 last year, and were a striking collection of different kinds of pigeons for which classes are not provided. Many were splendid examples of their breeds, and together they made a collection of some very beautiful and rare breeds of pigeons, among which it must be a difficult matter to find the best.

In concluding my report, I am pleased to say that with the very able help of my Assistant Steward, Mr. H. J. Heppel, and of my other Stewards, we were able to carry through successfully the biggest Pigeon Show yet held at the Agricultural Hall, London, to, I trust, the entire satisfaction of all Exhibitors.

My thanks are due to all those Fanciers who acted as my Stewards and Assistant Stewards for the way they worked to help carry the Pigeon Section through successfully, as well as to our Secretary and his staff for their assistance and kindly consideration at all times.

AWARD OF PRIZES, DAIRY SHOW, 1921.

DAIRY COWS AND HEIFERS IN MILK.

THE "BLEDISLOE" CHALLENGE TROPHY (offered by LORD BLEDISLOE, K.B.E.), awarded to the British Friesian Cattle Society for the Best Exhibit of good all-round Dairy Cows. The Cows competing for the Trophy were the first six in the Milking Trials, and were considered by the Inspection Judge to be typical specimens of the Breed.

In judging for the Trophy, the Judge took into consideration the general usefulness of the animals from a Dairy point of view along with the results of the Milking Trials.

Class 1.—DAIRY SHORTHORN COW.—Entered in or eligible for Coates's Herd Book, or its pedigree sent for such entry previous to the Show, born on or previous to 1st August, 1916.—*First* Inspection Prize (£10) to John Bailey, The Braes Farm, Nutfield Station, Redhill, for "Red Rose." *Second* Inspection Prize (£5) to E. C. Fairweather, Avisford Park, Arundel, for "Silverton Sweet Rush." *Third* Inspection Prize (£3) to D. Aldridge, Skotchley Hall Farm, Hinckley, for "Maude Moore." *Fourth* Inspection Prize (£2) and *Third* Milking Trial Prize (£3) to D. Aldridge for "Vain Lucy 5th." *Fifth* Inspection Prize (£1) to J. A. Beattie, Gatwick Farm, Kingswood, Reigate, for "Red Rose 11th." *First* Milking Trial Prize (£10) and the Desborough Cup to Eustace A. Smith, Longhills, Lincoln, for "Catthorpe Seraphina." *Second* Milking Trial Prize (£5) to Messrs. Chivers & Sons, Ltd., Histon, Cambs., for "Wild Queen 29th."

Class 2.—DAIRY SHORTHORN COW.—Entered in or eligible for Coates's Herd Book, or its pedigree sent for such entry previous to the Show, born after 1st August, 1916, and previous to 1st August, 1918.—*First* Inspection Prize (£5) to Capt. A. S. Wills, Thornby Hall, Northampton, for "Thornby Ringlet 3rd." *Second* Inspection Prize (£3) to Sir William Hicking, Bart., Brackenhurst Hall, Southwell, for "Lady Clara." *Third* Inspection Prize (£2) to A. J. Hollington, Forty Hill, Enfield, for "Enfield Viola 2nd." *Fourth* Inspection Prize (£1), *First* Milking Trial Prize (£5) and Shorthorn Society's Prize (£10) to D. Aldridge for "Merry Maid 5th." *Fifth* Inspection Prize (10s.) to J. A. Attwater, Dry Leaze, Cirencester, for "Hadnock Heath." *Second* Milking Trial Prize (£3) to J. G. Peel, Peover Hall, near Knutsford, for "Watercrook Rose." *Third* Milking Trial Prize (£2) to Capt. A. S. Wills, for "Strawberry."

Class 3.—DAIRY SHORTHORN HEIFER.—Entered in or eligible for Coates's Herd Book, born on or after 1st August, 1918.—*First* Inspection Prize (£5) to George Twentyman, Campsfield, Woodstock, for "Thurnham Sheila." *Second* Inspection Prize (£3) to W. L. Lea, Bryon Eurn, Colwyn Bay, for "Bertha 29th." *Third* Inspection Prize (£2) to W. G. Millar, Bampton, Oxon, for "Telluria Belle 3rd." *Fourth* Inspection Prize (£1) to J. G. Peel, for "Melody 40th." *Fifth* Inspection Prize (10s.) and *Second* Milking Trial Prize (£3) to Lieut.-Col. W. M. Pryor, D.S.O., Lannock Manor, Stevenage, for "Lady Barrington." *First* Milking Trial Prize (£5) to Eustace A. Smith, for "Longhills Melody." *Third* Milking Trial Prize (£2) to E. C. Fairweather, for "Avisford Cyrene."

Class 4.—DAIRY SHORTHORN COW.—Not eligible for Classes 1 and 2.—*First* Inspection Prize (£10) to J. L. Shirley, Silverton, Woughton, Bletchley, for "Pretty Maid 2nd." *Second* Inspection Prize (£5) to J. W. Astley, West Marton, Skipton, for "Southfield Duchess." *Third* Inspection Prize (£3) to Walter Wilson, Kidside Farm, Milnthorpe, for "Dairymaid." *Fourth* Inspection Prize (£2) and *Second* Milking Trial Prize (£5) to Messrs. J. F. Nelson & Co., Cockerham Hall, for "Lady Nelson." *Fifth* Inspection Prize

(£1) to Walter Wilson, for "Primrose 5th." *First Milking Trial Prize* (£10) to Sir William Hicking, Bart., for "Golden Sovereign." *Third Milking Trial Prize* (£3) to J. W. Astley, for "Southfield Lady."

Class 5.—DAIRY SHORTHORN HEIFER.—Not eligible for Class 3, born on or after 1st August, 1918. *First Inspection Prize* (£5) and *Second Milking Trial Prize* (£3) to J. L. Shirley, for "Primrose Maid." *Second Inspection Prize* (£3) and *First Milking Trial Prize* (£5) to Walter Wilson, for "Lady Mary." *Third Inspection Prize* (£2) and *Third Milking Trial Prize* (£2) to J. W. Astley, for "Southfield Alice." *Fourth Inspection Prize* (£1) to Messrs. A. Stapleton & Sons, Ltd., Elmscott Farm, Winchmore Hill, Enfield, for "Brooklands Buttercup."

Class 6.—LINCOLNSHIRE RED SHORTHORN COW.—Entered in or eligible for the Herd Book of the Lincolnshire Red Shorthorn Association.—*First Inspection Prize* (£10) and *First Milking Trial Prize* (£10) to Messrs. John Evens & Son, Burton, Lincoln, for "Burton Fillingham." *Second Inspection Prize* (£5) and *Third Milking Trial Prize* (£3) to Sydney Reading, Langford, Lechlade, for "Langford Polly 6th." *Third Inspection Prize* (£3) and *Second Milking Trial Prize* (£5) to Messrs. John Evens & Son, for "Burton Suttie 2nd."

Class 7.—LINCOLNSHIRE RED SHORTHORN HEIFER.—Entered in or eligible for the Herd Book of the Lincolnshire Red Shorthorn Association, born on or after 1st August, 1918.—*First Inspection Prize* (£5) to Sydney Reading, for "Longford Polly 9th." *Second Inspection Prize* (£3) to Messrs. John Evens & Son, for "Burton Bramble 3rd." *Third Inspection Prize* (£2) and *Second Milking Trial Prize* (£4) to Messrs. John Evens & Son, for "Burton Hettie 7th." *Third Milking Trial Prize* (£2) to Messrs. John Evens & Son, for "Burton Ruby Spot 15th."

Class 8.—JERSEY COW.—Entered in or eligible for the Herd Book.—*First Inspection Prize* (£7), *Second Milking Trial Prize* (£4) and the Blythwood Bowl to Col. Lionel Gisborne, C.M.G., Lingen Hall Brampton Bryn, Herefordshire, for "Dock Weed." *Second Inspection Prize* (£4) to Mrs. Evelyn, Wotton House, Dorking, for "Limberlost." *Third Inspection Prize* (£2) and *Third Milking Trial Prize* (£2) to Mrs. Rudd, Felbridge Park, East Grinstead, for "Meadow Vale Pride." *First Milking Trial Prize* (£7) to R. Bruce Ward, Godinton, Ashford, Kent, for "Marseillaise."

Class 9.—JERSEY HEIFER.—Bred in Great Britain or Ireland.—Entered in or eligible for the Herd Book, born on or after 1st August, 1918.—*First Inspection Prize* (£5) to Major the Hon. Harold Pearson, Cowdray Park, Midhurst, for "Cowdray Cowslip." *Second Inspection Prize* (£3) to Sir G. Stanley White, Bart., Hollywood Tower, near Bristol, for "Daffodil of Hollywood." *Third Inspection Prize* (£2) to O. F. Mosley, Leasingham Manor, Sleaford, for "Leasingham Yolande."

Class 10.—JERSEY HEIFER.—Bred in the Channel Islands.—Entered in or eligible for the Jersey or English Jersey Herd Book, born on or after 1st August, 1918.—*First Inspection Prize* (£5) to Major the Hon. Harold Pearson, for "Beuveland Dolly." *Second Inspection Prize* (£3) to R. W. Carson, King's Sutton, Banbury, for "Memory's Lass." *Third Inspection Prize* (£2) to R. W. Carson, for "Lady Vedas 6th."

Class 11.—GUERNSEY COW.—Entered in or eligible for the Herd Book, born on or previous to 1st August, 1916.—*First Inspection Prize* (£7), *First Milking Trial Prize* (£7) and the "Stagenhoe" Challenge Cup to Mrs. Jervoise, Herriard Park, Basingstoke, for "Lady's Maid 2nd of Ville au Roi." *Second Inspection Prize* (£4) to H.R.H. the Duchess of Albany, Claremont, Esher, for "Trequean Lady 2nd." *Third Inspection Prize* (£2) to Mrs. R. C. Bainbridge, Elfordleigh, Plympton, for "Daisy 3rd of Les Maux-Marquis." *Second Milking Trial Prize* (£4) to Mrs. R. C. Bainbridge, for "Godolphin Pansy." *Third Milking Trial Prize* (£2) to E. J. Wythes, Home Farm, Copped Hall, Epping, for "Engew Pansy."

- Class 12.—GUERNSEY COW.—Entered in or eligible for the Herd Book, born after 1st August, 1916, and previous to 1st August, 1918.—*First Inspection Prize* (£5) to Mrs. R. C. Bainbridge, for "Les Raies' Sarah." *Second Inspection Prize* (£3) and *Second Milking Trial Prize* (£3) to J. W. Towler, Wadlands Hall, Farsley, for "Ranunculus 32nd." *Third Inspection Prize* (£2) to Mrs. Jervoise, for "Vena 2nd of the Vauxbelets." *First Milking Trial Prize* (£5) to W. F. Trumper, Fairfield, Potterne Road, Devizes, for "Damaris of Bigard 2nd." *Third Milking Trial Prize* (£2) to G. P. Sandy, Puddington Hall, Neston, for "Downe Lanoes Beauty 2nd."
- Class 13.—GUERNSEY HEIFER.—Entered in or eligible for the Herd Book, born on or after 1st August, 1918.—*First Inspection Prize* (£5) and *Second Milking Trial Prize* (£3) to Messrs. W. Holly & Sons, Berrylands Farm, Surbiton, for "Tolworth Lassie." *Second Inspection Prize* (£3) and *First Milking Trial Prize* (£5) to J. B. Body, Hindhead Court, Hindhead, for "Lynchmere Rosy." *Third Inspection Prize* (£2) to O. Portman Rubeck, Valencia, Meath Green, Horley, for "Valencia Lavender." *Third Milking Trial Prize* (£2) to O. Portman Rubeck, for "Fanny of Tregonning."
- Class 14.—RED POLL COW.—Entered in or eligible for the Herd Book, born on or previous to 1st August, 1916.—*First Inspection Prize* (£7) to Joseph Watson, Sudbourne Hall, Orford, for "Gressenhall Molly." *Second Inspection Prize* (£4) to Capt. J. O. Sherrard, Gaddesby Hall, Leicester, for "Framlingham Red Russett." *Third Inspection Prize* (£2) to Major J. S. Courtauld, M. C., Burton Park, Petworth, for "Harefield Rosie 2nd." *First Milking Trial Prize* (£7) to Sir A. E. Bowen, Bart., Colworth, Sharnbrook, for "Sudbourne Adela." *Second Milking Trial Prize* (£4) to M. C. Pilkington, Hutton Hall, Hutton, for "Harefield Ruth."
- Class 15.—RED POLL COW.—Entered in or eligible for the Herd Book, born after 1st August, 1916, and previous to 1st August, 1918.—*First Inspection Prize* (£7) to Joseph Watson, for "Kitchener's Daffodil 3rd." *Second Inspection Prize* (£4) to Joseph Watson, for "Gressenhall Lavender." *Third Inspection Prize* (£2) to A. Carlyle Smith, Sutton Hall, Woodbridge, for "Ashmoor Pense." *First Milking Trial Prize* (£7) to Lieut.-Col. W. Elwes, Oakdale, Oakley, for "Kirtou Fryer." *Second Milking Trial Prize* (£4) to Felix Leach, Meddler Stud, Kennett, Newmarket, for "Meddler Mayflower." *Third Milking Trial Prize* (£2) to M. C. Pilkington, for "Harefield Belle."
- Class 16.—RED POLL HEIFER.—Entered in or eligible for the Herd Book, born on or after 1st August, 1918.—*First Inspection Prize* (£5) to Joseph Watson, for "Sudbourne Esmeralda." *Second Inspection Prize* (£3), *Second Milking Trial Prize* (£3) and Red Poll Cattle Society's Prize (£5) to David Trembath, Tanfield Tye Farm, West Hanningfield, Chelmsfield, for "Tendring Vera 18th." *Third Inspection Prize* (£2) to A. Carlyle Smith, for "Ashmoor Sunbeam." *First Milking Trial Prize* (£5) to Major J. A. Morrison, D.S.O., Basildon Park, Goring, Reading, for "Spalding Pearl." *Third Milking Trial Prize* (£2) to N. A. Heywood, Glevering Park, Wickham Market, for "Ashmoor Viola."
- Class 17.—DEVON COW.—Entered in or eligible for the Herd Book, or entered in the Supplementary Register of such Herd Book.—*First Inspection Prize* (£7) and *Third Milking Trial Prize* (£2) to John H. Chick, Wynford Eagle, Dorchester, for "Cherry 3rd." *Second Inspection Prize* (£4) and *First Milking Trial Prize* (£7) to W. G. Busk, Wraxhall, Dorchester, for "Stratton Tottie 5th." *Third Inspection Prize* (£2) to Alfred T. Loram, Rosamondford, Aylesbeare, for "Octroi." *Second Milking Trial Prize* (£4) to Alfred T. Loram, for "Melon."
- Class 18.—SOUTH DEVON COW.—*First Inspection Prize* (£7), *Second Milking Trial Prize* (£4) and the South Devon Herd Book Society's Prize (£10) to W. E. Brooking, Furzedown, Marlborough, Kingsbridge, for "Milkmaid 2nd." *Second Inspection Prize* (£4) to Messrs. W. L. Hosking & Sons, Fentongollan

Probus, for "Fentongollan Buttercup." *Third* Inspection Prize (£2) to Walter Hunt, Tracey's Farm, Berry-Pomeroy, Totnes, for "Netton Lily." *First* Milking Trial Prize (£7) to Walter Hunt, for "Milkmaid 4th."

Class 19.—**AYRSHIRE COW.**—*First* Inspection Prize (£7) and *First* Milking Trial Prize (£7) to Robert Dickie, Knockenjug, Sanquhar, Dumfriesshire, for "Jean." *Second* Inspection Prize (£4) and *Second* Milking Trial Prize (£4) to H. W. B. Crawford, Forneth, Castle Douglas, for "Meg."

Class 20.—**KERRY COW.**—Entered in or eligible for the Herd Book.—*First* Inspection Prize (£5) to S. J. Brown, Ard Caen, Naas, Co. Kildare, for "Gort Curley 4th." *Second* Inspection Prize (£3) to J. W. Towler, for "Wyresdale Clover." *Third* Inspection Prize (£2) to Capt. Nelson Zambra, M.C., Hattingley House, Medstead, for "Walton Lanky 2nd." *Fourth* Inspection Prize (£1) to S. J. Brown, for "Duv Time." *First* Milking Trial Prize (£3) and the English Kerry and Dexter Cattle Society's Challenge Cup, to J. W. Towler, for "Wadlands Buttermilker." *Second* Milking Trial Prize (£2) to J. W. Towler, for "Flora of Carton."

Class 21.—**KERRY HEIFER.**—Entered in or eligible for the Herd Book, born on or after 1st August, 1918.—*First* Inspection Prize (£4) and *First* Milking Trial Prize (£4) to J. W. Towler, for "Rosebud of Carton." *Second* Inspection Prize (£3) to Laurence Currie, Minley Manor, Farnborough, for "Minley Martha." *Third* Inspection Prize (£2) to Messrs. L. Harrison & Co., Ltd., Pedigree Live Stock Farms, Coolham, Horsham, for "Lady Blarney Sloe." *Second* Milking Trial Prize (£3) to J. W. Towler, for "Vaddy Owenreagh."

Class 22.—**DEXTER COW.**—Entered in or eligible for the Herd Book.—*First* Inspection Prize (£5) and *First* Milking Trial Prize (£3) to Alfred C. King, Braishfield Manor, Romsey, for "La Mancha Madeline." *Second* Inspection Prize (£3), *Second* Milking Trial Prize (£2) and the Nutt Challenge Cup, to Lady Kathleen Hare, Brockenhurst Park, Brockenhurst, for "Gort Peach 9th." *Third* Inspection Prize (£2) to Mrs. H. J. Nutt, Hampton House, Hampton-in-Arden, for "Fillongley Farola."

Class 23.—**DEXTER HEIFER.**—Entered in or eligible for the Herd Book, born on or after 1st August, 1918.—Cancelled.

Class 24.—**BRITISH FRIESIAN COW.**—Entered in or eligible for the Herd Book, born on or previous to 1st August, 1916.—*First* Inspection Prize (£10) to E. Furness, Hamels Park, Buntingford, for "Hedges (imported) Froukje 3rd." *Second* Inspection Prize (£5) and *Third* Milking Trial Prize (£3) to Messrs. A. & J. Brown, Hedges Farm, St. Albans, for "Hedges Friesland Queen." *Third* Inspection Prize (£3), *First* Milking Trial Prize (£10), the Spencer Challenge Cup, the Barham Challenge Cup and the Shirley Challenge Cup to Messrs. W. & R. Wallace, Knebworth, for "Bladen Early." *Second* Milking Trial Prize (£5) to James Russel, Mapleton, Edenbridge, for "Felhampton Susan."

Class 25.—**BRITISH FRIESIAN COW.**—Entered in or eligible for the Herd Book, born after 1st August, 1916, and previous to 1st August, 1918.—*First* Inspection Prize (£5) to Messrs. A. & J. Brown, Haydon Hill, Aylesbury, for "Moss Peggy." *Second* Inspection Prize (£3) and *Second* Milking Trial Prize (£3) to Capt. R. G. Buxton, Petygards, Sporle, King's Lynn, for "Petygards Masseuse." *Third* Inspection Prize (£2) and *Third* Milking Trial Prize (£2) to The Hache Herd, Muntham Home Farm, Findon, Worthing, for "Colton Bram Peppermint." *First* Milking Trial Prize (£5) to G. Holt-Thomas, Northdean House, Northdean, High Wycombe, for "Beccles Silver Queen."

Class 26.—**BRITISH FRIESIAN HEIFER.**—Entered in or eligible for the Herd Book, born on or after 1st August, 1918.—*First* Inspection Prize (£5) and *Third* Milking Trial Prize (£2) to G. Holt-Thomas, for "Kingswood, Ceres Myrtle." *Second* Inspection Prize (£3) to Messrs. A. & J. Brown, Aylesbury, for "Milton

Roma." *Third* Inspection Prize (£2) to Capt. R. G. Buxton, for "Petygards Tulip." *First* Milking Trial Prize (£5) to Messrs. F. & T. Neame, Macknade, Faversham, for "Macknade Endaw." *Second* Milking Trial Prize (£3) to A. Burnham, Plumridge Farm, Barnet, for "Attimore Mercia."

Class 27.—WELSH BLACK COW.—Entered in or eligible for the Herd Book.—No Award.

MILK RECORDED COWS.

(Inspection only.)

Class 28.—DAIRY SHORTHORN COW.—Entered in or eligible for Coates's Herd Book, or its Pedigree sent for such entry previous to the Show.—Yield 8,000 lbs. and over.—*First* Prize (£7) to J. Bailey, for "Red Rose." *Second* Prize (£4) to Messrs. Chivers & Sons, Ltd., for "Ruby 6th." *Third* Prize (£2) to Messrs. Chivers & Sons, Ltd., for "Barrington Cranford 38th."

Class 29.—DAIRY SHORTHORN COW.—Entered in or eligible for Coates's Herd Book, or its Pedigree sent for such entry previous to the Show.—Yield 6,500 lbs. and over.—*First* Prize (£7) to Capt. A. S. Wills, for "Thornby Ringlet 3rd." *Second* Prize (£4) to J. A. Attwater, for "Hadnock Heath." *Third* Prize (£2) to F. H. Thornton, Kingsthorpe Hall, Northampton, for "Kingsthorpe Raspberry 4th."

Class 30.—FOUNDATION SHORTHORN COW.—Entered in or eligible for the Dairy Shorthorn Association's Herd Book.—Yield 8,000 lbs. and over.—*First* Prize (£7) to J. Eadson, 365 Padiham Road, Burnley, for "Langdale Molly." *Second* Prize (£4) to N. Hardman, The Elms, Barton, Preston, for "Fair Oak Beauty." *Third* Prize (£2) to J. L. Shirley, for "Allthorpe Mary."

Class 31.—FOUNDATION SHORTHORN COW.—Entered in or eligible for the Dairy Shorthorn Association's Herd Book.—Yield 6,500 lbs. and over.—*First* Prize (£7) to Mrs. C. B. Robinson, Amberley Court, Monmouth, for "Milkmaid 2nd." *Second* Prize (£4) to J. H. Ismay, Iwerne Minster, Blandford, for "Florence 2nd."

Class 32.—BRITISH FRIESIAN COW.—Entered in or eligible for the Herd Book.—Yield 8,000 lbs. and over.—*First* Prize (£7) to E. Furness, for "Hedges (imported) Froukje 3rd." *Second* Prize (£4) to Messrs. A. & J. Brown, St. Albans, for "Hedges Friesland Queen." *Third* Prize (£2) to Messrs. W. & R. Wallace, for "Bladen Early."

Class 33.—BRITISH FRIESIAN COW.—Entered in or eligible for the Herd Book.—Yield 6,500 lbs. and over.—*First* Prize (£7) to Messrs. A. & J. Brown, Aylesbury, for "Moss Peggy." *Second* Prize (£4) to Capt. R. G. Buxton, for "Petygards Masseuse."

Class 34.—COW OF ANY OTHER PURE BREED.—Entered in or eligible for its respective Herd Book.—Yield 6,500 lbs. and over.—*First* Prize (£7) to Messrs. John Evens & Son, for "Burton Fillingham" (Lincolnshire Red Shorthorn). *Second* Prize (£4) to W. E. Brooking, for "Milkmaid 2nd" (South Devon). *Third* Prize (£2) to John H. Chick, for "Cherry 3rd" (Devon).

Class 35.—COW, NON-PEDIGREE OR CROSS-BRED.—Yield 6,500 lbs. and over.—*First* Prize (£7) to N. Hardman for "Dolly." *Second* Prize (£4) to John Ford, Bears Head, Smallwood, Sandbach, for "Tulip." *Third* Prize (£2) to Sir Edward E. Pearson, Brickendonbury, for "Sowerby Elsie."

COWS OF ANY BREED OR CROSS, IN MILK.

(Inspection only.)

Class 36.—PAIR OF COWS.—*First* Prize (£20) to Messrs. J. F. Nelson & Co., for "Pet" and "Dot" (Shorthorns). *Second* Prize (£15) to Walter Wilson, for "Bessie" and "Edith" (Shorthorns). *Third* Prize (£10) to N. Hardman,

for "Phyls" and "Clara." *Fourth Prize* (£5) to John Ford, for "Phyls" and "Daisy" (Shorthorns). *Fifth Prize* (£3) to Messrs. John Evens & Son, for "Burton Ruby Spot 14th" and "Burton Cherry Blossom 3rd" (Lincolnshire Red Shorthorns).

Class 37.—SINGLE COW.—*First Prize* (£10) to J. W. Astley, for "Southfield Fancy" (Shorthorn). *Second Prize* (£7) to John Ford, for "Dot" (Shorthorn). *Third Prize* (£5) to N. Hardman, for "Rose." *Fourth Prize* (£3) to Walter Wilson, for "Dolly" (Shorthorn). *Fifth Prize* (£2) to F. Brazier, Ley House, Granborough, Winslow, for "Duchess" (Shorthorn).

BUTTER TESTS.

SHORTHORNS entered in Classes 1, 2, 3, 4, 5, 6 and 7.—*First Prize* (£10 and Silver Medal) to Messrs. John Evens & Son, for "Burton Fillingham." *Second Prize* (£5 and Bronze Medal) to J. W. Astley, for "Southfield Lady." *Third Prize* (£3) to Messrs. John Evens & Son, for "Burton Suttie 2nd." *Fourth Prize* (£2) and the George Bateman Nelson (Coronation) Challenge Cup, to Messrs. J. F. Nelson & Co., for "Lady Nelson."

JERSEYS, entered in Classes 8, 9 and 10.—*First Prize* (£5 and Gold Medal) to R. Bruce Ward, for "Marseillaise." *Second Prize* (£3 and Silver Medal) to Col. Lionel Gisborne, C.M.G., for "Dock Weed." *Third Prize* (£2 and Bronze Medal) to R. W. Carson, for "Elegant Finance." Certificate of Merit to Sir G. Stanley White, Bart., for "Ursanne Belle"; W. Duncan Knight for "Rapkyns Pavillion's Lass"; Mrs. Rudd, for "Meadow Vale Pride"; Laurence E. Tubbs, for "Duchess Prudence 4th"; R. Bruce Ward, for "Meytham Pauline"; Mrs. Hayes Sadler, for "Golden Fleece 9th"; Mrs. Rudd, for "Fantastic"; G. Cross, for "Yellow Wort"; R. Bruce Ward, for "Piquant"; J. H. N. Roberts, for "Happy Maid."

RED POLLS, entered in Classes 14, 15 and 16.—*First Prize* (£5) to M. C. Pilkington, for "Harefield Ruth." *Second Prize* (£3) to Lieut.-Col. W. Elwes, for "Kirtion Fryer."

ANY OTHER BREED entered in Classes 11, 12, 13 and 17 to 27 inclusive.—Prizes of £3 each to Mrs. R. C. Bainbridge, for "Godolphin Pansy" (Guernsey); J. H. Chick, for "Wynford Laburnum" (Devon); Walter Hunt, for "Milkmaid 4th" (South Devon); Robert Dickie, for "Jean" (Ayrshire); J. W. Towler, for "Flora of Carton" (Kerry); Lady Kathleen Hare, for "Gort Peach 9th" (Dexter); Messrs. W. & R. Wallace, for "Bladen Early" (British Friesian). Prizes of £2 each to Mrs. R. C. Bainbridge, for "Daisy 3rd of Les Maux-Marquis" (Guernsey); Messrs. R. A. Clarke & Sons, for "Lady 1st" (Devon); J. W. Towler, for "Wadlands Buttermilker" (Kerry); E. Furness, for "Hedges (imported) Froukje 3rd" (British Friesian).

First Prize (Gold Medal) for Kerry Cow, 3 years old or over, to J. W. Towler, for "Flora of Carton." *Second Prize* (Silver Medal) to J. W. Towler, for "Wadlands Buttermilker." *First Prize* (Bronze Medal) for Kerry Heifer, not exceeding 3 years old, to J. W. Towler, for "Rosebud of Carton."

BULLS.

Class 38.—DAIRY SHORTHORN BULL.—Entered in or eligible for Coates's Herd Book, born previous to 1st August, 1919.—*First Prize* (£10) to The Earl of Derby, K.G., Knowsley, Prescott, for "Knowsley Carol Dolphin." *Second Prize* (£5) to Sir Charles Allom, Totteridge, for "Kelmescott Conjuror 28th." *Third Prize* (£3) to the Rt. Hon. Sir Alfred Mond, Bart., Melchet Court, Romsey, for "Combebank Baron." *Fourth Prize* (£2) to Lieut.-Col. W. M. Pryor, D.S.O., for "John Wild Eyes."

Class 39.—DAIRY SHORTHORN BULL.—Entered in or eligible for Coates's Herd Book, born on or after 1st August, 1919.—*First Prize* (£10) to Robert N. Tory,

Anderson, Blandford, for "Anderson Eagle." *Second Prize* (£5) to Capt. the Hon. E. A. FitzRoy, M.P., Fox Hill, West Haddon, for "Foxhill Springtime." *Third Prize* (£3) to Capt. the Hon. E. A. FitzRoy, M.P., for "Foxhill Prince Pearl." *Fourth Prize* (£2) to Sir William Hicking, Bart., for "Eaton Royal Regent."

Class 40.—JERSEY BULL.—Entered in or eligible for the Herd Book, born on or after 1st August, 1918.—*First Prize* (£10) to R. Bruce Ward, for "Pilgrim."

Class 41.—BRITISH FRIESIAN BULL.—Entered in or eligible for the Herd Book, born on or after 1st August, 1919.—*First Prize* (£5) to The Hache Herd, for "Hache Cerjan Ulysses." *Second Prize* (£3) to Arthur Allen, Manor House, Chesterblade, Shepton Mallet, for "Kingswood Ynteseries."

Class 42.—BULL OF ANY PURE BREED (not eligible for Classes 38, 39, 40 and 41).—Entered in or eligible for its respective Herd Book, born previous to 1st August, 1920.—*Silver Medal* to Sir A. E. Hambro, K.C.V.O., Hayes Place, Hayes, for "Hayes Waterbury" (Guernsey); A. Carlyle Smith, for "Ashmoor Woodman" (Red Poll); Messrs. John Evens & Son, for "Burton Royal Son" (Lincolnshire Red Shorthorn).

SHE-GOATS.

MILKING COMPETITION FOR GOATS OF ANY VARIETY.

Class 43.—SHE-GOATS qualified as "Star or 'Q' Star Milkers."—*First Prize* (£2 and Silver Medal), the Baroness Burdett-Coutts Perpetual Challenge Cup and the Dewar Perpetual Challenge Trophy, to Mrs. Hope Maurice, Ach-na-Cree, Ridgeway, Woking, for "Tremedda Ornella" (Anglo-Nubian Swiss). *Second Prize* (£1) and the Tremedda Selene Perpetual Challenge Cup to Miss Pope, Bashley Lodge, New Milton, for "Problem of Bashley" (Anglo-Nubian Swiss). *Third Prize* (10s.) to Mrs. J. C. Straker, Stagshaw, Corbridge, for "Leazes Kidstone" (cross-bred).

Class 44.—SHE-GOATS not eligible for Class 43.—*First Prize* (£2 and Silver Medal) to Mrs. Arthur Abbey, Didgemere Hall, Roydon, for "Withdean Countess" (British Alpine). *Second Prize* (£1) to Mrs. Arthur Abbey, for "Cophthorn Pompon" (Anglo-Nubian Swiss). *Third Prize* (10s.) to Mrs. Mabel Grace, Silver Beach, Herne Bay, for "Brentmoor Bluebell."

INSPECTION CLASSES.

Class 45.—SHE-GOATS OF ANY VARIETY that have won one or more First Prizes in Open Adult Classes, other than Milking Classes, recognised by the British Goat Society, on or before 3rd September, 1921.—*First Prize* (£2) and the British Goat Society's Perpetual Challenge Cup, to Mrs. Hope Maurice, for "Ridgeway Rosalba" (Anglo-Nubian Swiss). *Second Prize* (£1) to Mrs. Arthur Abbey, for "Preference" (British Alpine). *Third Prize* (10s.) to E. A. Walsley, The Priors Farm, Mattingley Green, Hartley Wintney, for "Atherstone Faith" (Anglo-Nubian Swiss). The Pomcroy Perpetual Challenge Cup, to Mrs. Reginald Pease, Sledwich, Barnard Castle, for "Sadberge Brambling" (Anglo-Nubian). The Straker Challenge Cup and Breed Challenge Certificate, to Miss Marjorie Henderson, The Riding, Hexham, for "Riding Cherry" (Toggenburg). *Special Prize* (£1 ls.) offered by Miss A. Amici-Grossi for the best British Toggenburg Goat, to Miss Pope, for "Patience of Bashley."

Class 46.—SHE-GOATS, ENGLISH, not eligible for Class 45, over two years.—*First Prize* (£2) to M. J. Rutter, Raydon, Mitcham, for "Raydon Vi." *Second Prize* (£1) to F. Macpherson, Vulcan Engineering Works, Wokingham, for "Emerald."

Class 47.—SHE-GOATS, TOGGENBURG, entered in the Toggenburg Section of the Herd Book, or eligible for entry therein, not eligible for Class 45, over two years.—Cancelled.

- Class 48.—SHE-GOATS, SWISS (OTHER THAN TOGGENBURG), BRITISH ALPINE, OR ANGLO-SWISS, the latter being any She-Goat bred from English and any recognised breed or breeds of Swiss Goats without any admixture of Anglo-Nubian or other blood for at least six generations on both sides.—Not eligible for Class 45, over two years.—Cancelled.
- Class 49.—SHE-GOATS, ANGLO-NUBIAN, being any Goat entered in the Anglo-Nubian Section of the Herd Book, or eligible for entry therein.—Not eligible for Class 45, over two years.—*First Prize* (£2) and Breed Challenge Certificate to Mrs. Mabel Grace, for "Herne Bay Honeysuckle." *Second Prize* (£1) to Mrs. Reginald Pease, for "Sadberge Shufflewing." *Third Prize* (10s.) and Special Prize (£3), offered by Mr. Reginald Pease, to Miss K. Pelly, Theydon Place, Epping, for "Theydon Tilda."
- Class 50.—SHE-GOATS, ANY OTHER VARIETY.—Not eligible for previous Classes, over two years.—*First Prize* (£2) to Mrs. Ruby Egerton, Malpas Cottage, Rushmore, Ipswich, for "White Dorothy" (British Saanen). *Second Prize* (£1) to E. A. Walmisley, for "Towcester Snowdrop" (Anglo-Nubian Swiss). *Third Prize* (10s.) to Mrs. Hope Maurice, for "Ridgeway Russet" (Anglo-Nubian Toggenburg).
- Class 51.—GOATLINGS, ANGLO-NUBIAN, being any Goatling entered in the Anglo-Nubian Section of the Herd Book, or eligible for entry therein.—Over one but not over two years.—*First Prize* (£2) to Miss K. Pelly, for "Theydon Crystal." *Second Prize* (£1) to Miss K. Pelly, for "Theydon Annette." *Third Prize* (10s.) to Miss K. Pelly, for "Theydon Angela."
- Class 52.—GOATLINGS, ANY OTHER VARIETY.—Not eligible for Class 51, over one but not over two years.—*First Prize* (£2) to Mrs. Arthur Abbey, for "Didge-mere Dulcie" (British Alpine). *Second Prize* (£1) to Mrs. Hope Maurice, for "Feltham Melanie" (British Alpine). *Third Prize* (10s.) to E. A. Walmisley, for "Atherstone Dinah" (Anglo-Nubian Swiss). *Special Prize* (£1 1s.) for the best British Toggenburg Goatling, to M. J. Rutter, for "Cherryrie."
- Class 53.—FEMALE KIDS, SWISS, including TOGGENBURG BRITISH ALPINE, OR ANGLO-SWISS, the latter being any Kid bred from English and any recognised breed or breeds of Swiss Goats without any admixture of Anglo-Nubian or other blood for at least six generations on both sides.—Not exceeding one year.—*First Prize* (£2) to E. A. Walmisley, for "Atherstone Pandora" (British Alpine). *Second Prize* (£1) to Mrs. Arthur Abbey, for "Didge-mere Doreen" (British Alpine). *Third Prize* (10s.) to H. E. Jeffery, Trenance, Diss, for "Jill of Trenance" (British Alpine).
- Class 54.—FEMALE KIDS, ANGLO-NUBIAN, being any Kid entered in the Anglo-Nubian Section of the Herd Book, or eligible for entry therein.—Not exceeding one year.—*First Prize* (£2) to Mrs. Mabel Grace, for "Herne Bay Dejah Thoris." *Second Prize* (£1) to Miss K. Pelly, for "Theydon Tangerina." *Third Prize* (10s.) to Miss K. Pelly, for "Theydon Annabelle."
- Class 55.—FEMALE KIDS, ANY OTHER VARIETY.—Not eligible for Classes 53 or 54, born prior to 1st May, 1921.—*First Prize* (£2) to Miss C. Chamberlain, Westons, Lyndhurst, for "Welfare of Westons" (Anglo-Nubian Swiss). *Second Prize* (£1) to E. A. Walmisley, for "Atherstone Madcap" (British Toggenburg). *Third Prize* (10s.) to Miss Pope, for "Playmate of Bashley" (British Toggenburg). *Special Prize* (£1 1s.) offered by Miss A. Amici-Grossi, for the best British Toggenburg Kid, to Miss Marjorie Henderson, for "Riding Hazel."
- Class 56.—FEMALE KIDS, ANY OTHER VARIETY.—Not eligible for Classes 53 or 54, born on or after 1st May, 1921.—*First Prize* (£2) to F. Macpherson for "Oxford Jasper" (Anglo-Nubian Swiss). *Second Prize* (£1) to F. Macpherson, for "Oxford Aquamarine" (Anglo-Nubian Swiss). *Third Prize* (10s.) to Capt. L. T. Davies, Symonds Yat, Ross-on-Wye, for "Cilmyn Blackie" (Anglo-Swiss).

CHEESE.

- Class 57.—STILTON (6 Cheeses).—*First Prize* (£7) to The Long Clawson Dairy, Ltd., Melton Mowbray. *Second Prize* (£4) to Messrs. H. Thompson & Sons, Ltd., Nether Broughton, Melton Mowbray. *Third Prize* (£2) to Messrs. Webster & Richardson, The Dairy, Twyford, Melton Mowbray.
- Class 58.—STILTON (36 Cheeses).—*First Prize* (£7 and Silver Medal) to Messrs. Colin & Co., Ltd., Melton Mowbray. *Second Prize* (£4) to The Long Clawson Dairy, Ltd. *Third Prize* (£2) to The Exors. of the late Henry Morris, Saxelbye, Melton Mowbray.
- Class 59.—CHEDDAR TRUCKLES (6 Cheeses).—*First Prize* (£7) to H. H. Pickford, Manor Farm, Patney, Devizes. *Second Prize* (£4) to A. H. Stevenson, Lagg, Ayr. *Third Prize* (£2) to P. N. Brake, Discove Farm, Bruton.
- Class 60.—CHEDDAR (4 Cheeses).—*First Prize* (£7), the Viking Challenge Cup and the Fullwood and Bland Challenge Cup to Messrs. A & W. Wyllie, Mossiel, Mauchline, Ayrshire. *Second Prize* (£4) to H. E. Tucker, Steeple Ashton, Trowbridge. *Third Prize* (£3) to A. H. Stevenson. *Fourth Prize* (£2) to M. Portch, Dropping Lane Farm, Bruton. *Fifth Prize* (£1) to G. Clark, New Mains, Preston Mill, Dumfries. The Hansen Challenge Trophy to The Fenwick Farmers' Co-operative Dairy Association, Ltd., Waterside Creamery, Fenwick, Ayrshire.
- Class 61.—CHEDDAR (20 Cheeses).—*First Prize* (£15 and Silver Medal) to H. H. Pickford. *Second Prize* (£10) to A. H. Stevenson. *Third Prize* (£7) to O. M. Tapp, The Abbey Farm, Stratton-on-Fosse, Bath. *Fourth Prize* (£5) to H. E. Tucker. *Fifth Prize* (£3) to A. Cochran, Ardwell, Kirkcolum, Stranraer.
- Class 62.—COLONIAL CHEDDAR, Coloured or Uncoloured (4 Cheeses not less than 60 lbs. each).—*First Prize* (Gold Medal) and the Hansen Challenge Trophy to The Mountain View Cheese Factory, Rossmore, Ontario. *Second Prize* (Silver Medal) to Messrs. A. A. Ayer & Co., Montreal. *Third Prize* (Bronze Medal) to The Dominion Cheese Company, Atwood, Ontario.
- Class 63.—CHESHIRE (20 Cheeses).—*First Prize* (£15 and Silver Cup) to C. E. Parton, Haughton Hall Farm, Tarporley. *Second Prize* (£10) to W. H. Hobson, Woodhey Hall, Nantwich. *Third Prize* (£7) to C. F. Hobson, Weston Hall, Eccleshall. *Fourth Prize* (£5) to J. E. Jones, Moss Farm, Haughton, Tarporley.
- Class 64.—CHESHIRE (4 Coloured Cheeses, not less than 40 lbs. each).—*First Prize* (£7) and the Fullwood & Bland Challenge Cup to J. T. Pye, Hall O'Coole, Nantwich. *Second Prize* (£4) to The Ruyton Co-operative Dairies, Ltd., Ruyton-XI-Towns, Salop. *Third Prize* (£2) to Messrs. H. Edwards & Son, Ltd., The Creameries, Market Drayton.
- Class 65.—CHESHIRE (4 Uncoloured Cheeses, not less than 40 lbs. each).—*First Prize* (£7) to J. T. Pye. *Second Prize* (£4) to C. F. Hobson. *Third Prize* (£2) to R. W. Parker, Cook's Pitt, Faddiley, Nantwich.
- Class 66.—CHESHIRE (4 Cheeses, not less than 40 lbs. each).—Open only to those who have never won a Prize for Cheshire Cheese at any Dairy Show.—*First Prize* (£5) to R. W. Parker. *Second Prize* (£3) to J. G. Handley, Stamford Heath, Chester. *Third Prize* (£2) to The United Dairies (Wholesale), Ltd., Whitechurch.
- Class 67.—LEICESTER (4 Cheeses).—*First Prize* (£4) to The United Dairies (Wholesale), Ltd., Ellastone, Ashbourne. *Second Prize* (£3) to The United Dairies (Wholesale), Ltd., Gnosall. *Third Prize* (£2) to The British Dairy Institute, Reading.
- Class 68.—LANCASHIRE (4 Cheeses).—*First Prize* (£4) to The United Dairies (Wholesale), Ltd., Gnosall. *Second Prize* (£3) to The United Dairies (Wholesale), Ltd., Newport, Salop. *Third Prize* (£2) to J. Thornton, Crawley Cross, Winmarleigh, Garstang.

- Class 69.—DERBY (4 Uncoloured Cheeses, not less than 25 lbs. each).—*First Prize* (£4) to The British Dairy Institute. *Second Prize* (£3) to The Brailsford Dairy Farmers' Association, Brailsford. *Third Prize* (£2) to The Cheddar Vale Dairy Co., Ltd., Rooksbridge, Axbridge.
- Class 70.—DOUBLE GLOSTER (4 Cheeses from 26 lbs. to 30 lbs. each, total weight not to exceed 120 lbs.).—*First Prize* (£4) to H. Lear, Doynton, Bristol. *Second Prize* (£3) to The United Dairies (Wholesale), Ltd., Gnosall. *Third Prize* (£2) to P. Swain, Bellevue, Wem.
- Class 71.—SINGLE GLOSTER (4 Cheeses, from 13 lbs. to 15 lbs. each, total weight not to exceed 60 lbs.).—*First Prize* (£4) to E. F. Jones, Haywards Farm, Alveston, Bristol. *Second Prize* (£3) to The Gloucester Dairy Supply, Ltd., Model Dairy, Gloucester.
- Class 72.—CAERPHILLY (4 Cheeses, not exceeding 8 lbs. each).—*First Prize* (£4) to The West of England Creamery, Highbridge. *Second Prize* (£3) to Miss L. Harding, The Elms, Pontypool. *Third Prize* (£2) to Miss R. James, Llancayo, Usk.
- Class 73.—WENSLEYDALE (6 Cheeses, Blue-moulded).—*First Prize* (£4) to A. Rowntree, The Dairy, Coverham, Middleham. *Second Prize* (£3) to The British Dairy Institute. *Third Prize* (£2) to Major J. A. Morrison, D.S.O.
- Class 74.—SMALLHOLDER, Quick Ripening (2 Cheeses under 8 lbs. but over 4 lbs. each).—*First Prize* (£2) to Miss A. E. Fray, Lower Nunton Farm, Salisbury. *Second Prize* (£1) to G. Woodfield, The Leys, Gnosall. *Third Prize* (10s.) to Mrs. A. Blatchford, Ashleigh, Lifton. *Fourth Prize* (5s.) to Mrs. M. Jones, New House, Staunton-on-Wye.
- Class 75.—SMALLHOLDER PRESSED, Long Keeping (2 Cheeses under 8 lbs. but over 4 lbs. each).—*First Prize* (£2) and the McWilliam Silver Fruit Dish to Miss E. M. Dyer, Batch Farm, Ticknham, Nailsea. *Second Prize* (£1) to Miss G. E. Dyer, Longfords, Long Load, Langport. *Third Prize* (10s.) to Miss H. E. Madge, Chilworthy Farm, Chard. *Fourth Prize* (5s.) to Miss J. T. Priscott, Higher House, Wheddon Cross, Taunton.
- Class 76.—SMALLHOLDER PRESSED, Quick Ripening (2 Cheeses not exceeding 4 lbs. each).—*First Prize* (£2) to Miss A. Symons, Fullaford, Callington. *Second Prize* (£1) to Mrs. A. Blatchford. *Third Prize* (10s.) to Miss E. H. Fray, The Farm, Nunton, Bodenham. *Fourth Prize* (5s.) to Miss E. Addis, Chilstone, Madley.
- Class 77.—SMALLHOLDER PRESSED, Long Keeping (2 Cheeses not exceeding 4 lbs. each).—*First Prize* (£2) to Miss L. Yeld, Dorstone House, Dilwyn, Leominster. *Second Prize* (£1) to Mrs. E. W. Evans, Crickleaze House, Chard. *Third Prize* (10s.) to Miss E. M. Madge, Chilworthy Farm, Chard. *Fourth Prize* (5s.) to Miss E. H. Fray.
- Class 78.—SMALL PRESSED, Quick Ripening (4 Cheeses, made at home, not exceeding 8 lbs. each).—Open to Pupils who have attended County Travelling Cheese Schools during 1920 or 1921.—*First Prize* (£3) to W. M. G. Singer, J.P., Norman Court, Salisbury. *Second Prize* (£2) to Mrs. W. A. Fray, The Tytheryton Farms, Ltd., Heytesbury. *Third Prize* (£1) to Miss D. Lester, Manor Farm, Maiden Bradley, Bath.
- Class 79.—SMALL PRESSED, Long Keeping (4 Cheeses, made at home, not exceeding 8 lbs. each) Open to Pupils who have attended County Travelling Cheese Schools during 1920 or 1921.—*First Prize* (£3) and the Walker Challenge Cup to Mrs. W. J. Acreman, Langland Farm, Catcott, Bridgwater. *Second Prize* (£2) to Miss S. Morgan, Middle Heldre, Buttington. *Third Prize* (£1) to Miss F. White, Moolham, Ilminster. *Fourth Prize* (10s.) to Mrs. S. Baker, Lower Farm, Curry Mallet, Taunton.

Class 80.—INTER-COUNTY COMPETITION. For the BEST COLLECTION OF SMALL-HOLDER CHEESES made by the persons who have received instruction in Cheesemaking at a County Council Travelling Cheese School during 1918-1921. The Head Teacher or County Organiser in each County to make the entry, which shall consist of six individual Competitors whose names shall be stated at the time of entry. Each Competitor's Exhibit shall consist of four cheeses of not more than 8 lbs. each in weight. The prizes to be allocated: One half to the successful Competitors and one half to the County Teacher or Teachers. A Certificate of Merit will be awarded by the British Dairy Farmers' Association to each individual competitor receiving a Prize.

First Prize (the "Inter-County" Challenge Shield and £10) to Berkshire:—

Miss F. M. Twose (Instructress).		
Miss S. Bucknell.	Miss E. Jacobs.	Miss L. Pring.
Mrs. S. Goodenough.	Miss N. Newton.	Mrs. C. W. Thorp.

Second Prize (£5) to Cornwall:—

Miss A. J. W. Nicholas (Instructress).		
Lady Margaret Boscawen	Mrs. Matthews.	Miss Symons.
Mrs. Lethbridge.	Mrs. Metherell.	Mrs. Thynne.

Third Prize (£3) to Montgomeryshire:—

Miss M. J. Williams (Instructress).		
Miss V. Bebb.	Miss G. Glyn-Jones.	Miss M. Morris.
Miss M. Chapman.	Miss A. Jones.	Miss M. Roberts.

Fourth Prize (£1) to Somersetshire:—

Miss D. G. Saker (Instructress).		
Mrs. W. J. Acreman.	Mrs. Biffin.	Miss Madge.
Mrs. Baker.	Miss E. Dyer.	Mrs. Sweet.

Class 81.—CREAM CHEESE, made from Pure Cream only. No Milk or Curd to be added (6 cheeses).—*First Prize* (£1) to Miss M. E. Gordon, 51A Ashby Road, Loughborough. *Second Prize* (10s.) to Mrs. W. Howard Palmer, Murrell Hill, Binfield.

Class 82.—UNRIPENED SOFT CHEESE, other than Cream Cheese. Made direct from Milk (4 Cheeses).—*First Prize* (£1) to The East Anglian Institute of Agriculture, Chelmsford. *Second Prize* (10s.) to Miss F. Dufosse, Church Farm, Longbridge Deverill, Warminster.

BACON.

Class 83.—PALE DRIED (4 hamless sides of Spring or Winter Cure).—Cancelled.

Class 84.—SMOKED (4 sides, mild cured in Wiltshire style with ham attached).—*First Prize* (Silver Medal) to Messrs. M. Venner & Sons, 99-101 Southampton Street, Reading. *Second Prize* (Bronze Medal) to Messrs. E. Miles & Co., Broadmead Bacon Factory, Bristol.

Class 85.—PALE DRIED (4 sides, mild cured in Wiltshire style, with ham attached).—*First Prize* (Silver Medal) to Messrs. M. Venner & Sons. *Second Prize* (Bronze Medal) to The Herts and Beds Bacon Factory, Ltd., Hitchin.

Class 86.—TWO SIDES OF BACON SMOKED AND TWO SIDES OF BACON PALE DRIED, AND TWO HAMS SMOKED AND TWO HAMS PALE DRIED (the weight of the sides not less than 56 lbs. and not more than 68 lbs. each; the hams not less than 12 lbs. and not more than 20 lbs. each).—*First Prize* (£7 7s.) to Messrs. M. Venner & Sons. *Second Prize* (£3 3s.) to The Herts and Beds Bacon Factory, Ltd. *Third Prize* (£2 2s.) to J. H. Ismay, Iwerne Minster, Blandford.

Class 87.—BACON PIGS (6 pigs entered by their respective breed societies).—*Prize* (The Whitley Challenge Cup) to The Large Black Pig Society, 12 Hanover Square, London, W. 1.

Class 88.—FOUR SIDES OF COLONIAL BACON.—*First Prize* (Gold Medal) to The Farmers' Co-operative Bacon Factory, Ltd., Estcourt, Natal, South Africa. *Second Prize* (Silver Medal) to Messrs. Sparks & Young, Ltd., Umgeni Road, Durban, South Africa. *Third Prize* (Bronze Medal) to The Farmers' Co-operative Bacon Factory, Ltd.

HAMS.

Class 89.—PALE DRIED (4 hams, long cut, of Winter or Spring cure, not over 14 lbs. weight).—*First Prize* (Silver Medal) to Messrs. Marsh & Baxter, Ltd., Brierley Hill, Staffs. *Second Prize* (Bronze Medal) to Messrs. W. H. Smart & Co., Ltd., Wrentham Street, Birmingham.

Class 90.—PALE DRIED (4 hams, long cut, of Winter or Spring cure, over 14 lbs. weight).—*First Prize* (Silver Medal) to Messrs. Marsh & Baxter, Ltd. *Second Prize* (Bronze Medal) to Messrs. Palethorpes, Ltd., Dudley Port, Staffs.

Class 91.—SMOKED (4 hams, long cut, mild cured, not over 10 weeks cured, not over 15 lbs. weight).—*First Prize* (Silver Medal) to Messrs. W. H. Smart & Co., Ltd. *Second Prize* (Bronze Medal) to Messrs. Marsh & Baxter, Ltd.

Class 92.—PALE DRIED (4 hams, long cut, mild cured, not over 10 weeks cured, over 15 lbs. weight).—*First Prize* (Silver Medal) to Messrs. Marsh & Baxter, Ltd. *Second Prize* (Bronze Medal) to Messrs. W. H. Smart & Co., Ltd.

Class 93.—FOUR HAMS (cured in Ireland).—No Entry.

Class 94.—TWO HAMS (cured in the Farmhouse or Home; professional bacon curers not eligible).—*First Prize* (£2) to Thomas Foster, 27 Church Street, Ormskirk. *Second Prize* (£1) to George Watson, Knightley, Eccleshall.

Class 95.—SELLING CLASS (2 hams any variety).—*First Prize* (£2) to Messrs. Palethorpes, Ltd. *Second Prize* (£1) to Thomas Foster. *Third Prize* (10s.) to Messrs. Marsh & Baxter, Ltd.

BUTTER.

Class 96.—SLIGHTLY SALTED. Open only to farmers, their wives, sons, and daughters, occupying not exceeding 100 acres, and who have never won a prize in the Butter Classes at any of the Association's Shows; 2 lbs. in 1-lb. lumps (brick shape).—*First Prize* (£3) and the Elkington Cup to Miss V. L. T. Hare, The Malthouse, Burghclere. *Second Prize* (£2) to Mrs. H. Gynn, Treswen Farm, Warbston, Egloskerrey. *Third Prize* (£1) to Miss C. Francis, Clover Close Farm, Corley, Wells.

Class 97.—PERFECTLY FREE FROM SALT (the produce of Channel Islands' Cattle and their Crosses; 2 lbs. in 1-lb. lumps, brick shape).—*First Prize* (£3) to Mrs. W. Howard Palmer. *Second Prize* (£2) to Miss A. Prichard, The Dairy, Welbeck, Worksop. *Third Prize* (£1) to Miss B. E. Northcott, Holmbush, St. Austell.

Class 98.—SLIGHTLY SALTED (the produce of Channel Islands' Cattle and their Crosses; 2 lbs. in 1-lb. lumps, brick shape).—*First Prize* (£3) to J. Q. Rowett, Ely Place, Frant. *Second Prize* (£2) to Mrs. Heywood, The Barton, Loxbeare, Tiverton. *Third Prize* (£1) to Mrs. W. Howard Palmer.

Class 99.—PERFECTLY FREE FROM SALT (the Produce of Shorthorn and other Cattle and their Crosses (except Channel Islands and their Crosses); 2 lbs. in 1-lb. lumps, brick shape).—*First Prize* (£3) to Miss S. H. Robinson, Red House, Liverton, Loftus. *Second Prize* (£2) to Mrs. A. A. Bere, Stoodleigh Barton, Tiverton. *Third Prize* (£1) to Mrs. H. Gynn.

Class 100.—SLIGHTLY SALTED (the produce of Shorthorn and other Cattle and their Crosses (except Channel Islands and their Crosses); 2 lbs. in 1-lb. lumps, brick shape).—*First Prize* (£3) to Mrs. W. Ramshaw, Kirkleatham Dairy, Redcar. *Second Prize* (£2) to Miss S. H. Robinson. *Third Prize* (£1) to Mrs. A. M. Cooke, The Lawns, Little Downham, Ely.

- Class 101.—FREE FROM SALT OR SLIGHTLY SALTED, at the discretion of the Exhibitor, to be made from Scalded Cream only (2 lbs. in 1-lb. lumps, brick shape).—*First Prize* (£3) to Lieut.-Col. Viscount Fielding, Street Ashton House, Rugby. *Second Prize* (£2) to R. J. Black, Midgham Park, Berks. *Third Prize* (£1) to Mrs. J. Armstrong, New Hall, Staveley.
- Class 102.—FREE FROM SALT (in 24-lb. boxes of 12 rolls; packages to be taken into consideration; rolls not to be separately wrapped).—*First Prize* (£3) to The Egginton Dairy Co., Ltd., Egginton Junction, Derby. *Second Prize* (£2) to the Ida Co-operative Creamery, Ltd., Tullogher, New Ross, Co. Kilkenny.
- Class 103.—MILD CURED, SLIGHTLY SALTED (in boxes of 24 rolls of 1 lb. each; packages to be taken into consideration; wrapping allowed).—*First Prize* (£3) to The Ida Co-operative Creamery, Ltd. *Second Prize* (£2) to The Ardagh Co-operative Dairy, Ardagh, Co. Limerick.
- Class 104.—CURED, SLIGHTLY SALTED (28 lbs.; packages to be taken into consideration).—*First Prize* (£3) to The Ardagh Co-operative Dairy.
- Class 105.—CURED (56 lbs.; packages to be taken into consideration).—*First Prize* (£3) to The Ardagh Co-operative Dairy.
- Class 106.—FANCY OR ORNAMENTAL DESIGN (with foliage or other extraneous decoration).—*First Prize* (£3) to H.R.H. The Duchess of Albany. *Second Prize* (£2) to Miss E. Bush.
- Class 107.—FANCY OR ORNAMENTAL DESIGN (without extraneous decoration, adapted for table use).—*First Prize* (£3) to H.R.H. The Duchess of Albany. *Second Prize* (£2) to Miss E. Bush.
- Class 108.—COLONIAL SALTED (1 box containing not less than 56 lbs.).—*First Prize* (Gold Medal) to The Manning River Co-operative Dairy Co., Ltd., Jones Island, Manning River, New South Wales, Australia. *Second Prize* (Silver Medal) to The Macleay River Co-operative Dairy Co., Ltd., Fredericton, Macleay River, New South Wales, Australia. *Third Prize* (Bronze Medal) to The Binna Burra Co-operative Dairy Co., Ltd., Binna Burra, New South Wales, Australia.
- Class 109.—COLONIAL UNSALTED (1 box containing not less than 56 lbs.).—*First Prize* (Gold Medal) to The Maryborough Co-operative Dairy Co., Ltd., Mundubbera, Queensland, Australia. *Second Prize* (Silver Medal) to The Singleton Central Co-operative Dairy Co., Ltd., Singleton, New South Wales, Australia. *Third Prize* (Bronze Medal) to the Manning River Co-operative Dairy Co., Ltd.

CREAM.

- Class 110.—CLOTTED.—*First Prize* (Silver Medal) to W. Beer, Trinity Dairy, Barnstaple. *Second Prize* (Bronze Medal) to Mrs. W. R. Beer, Pill Farm Dairy, Barnstaple.
- Class 111.—OTHER THAN CLOTTED.—*First Prize* (Silver Medal) to Mrs. W. Ramshaw. *Second Prize* (Bronze Medal) to Miss B. E. Northcott.

BOTTLED FRUITS, VEGETABLES AND JAMS.

- Class 112.—SIX BOTTLES OF SOFT FRUIT, of not less than 4 Varieties (Rhubarb admitted).—*First Prize* (£2) to G. W. Weatherill, Stokesley. *Second Prize* (£1) to Mrs. M. E. Parlour, Croft, Darlington. *Third Prize* (10s.) to Miss C. R. Swain, Reeden's School of Gardening, Newick.
- Class 113.—SIX BOTTLES OF STONE FRUIT, of not less than 4 Varieties (Apples and Pears admitted).—*First Prize* (£2) to Miss C. R. Swain. *Second Prize* (£1) to Mrs. M. E. Parlour.
- Class 114.—THREE BOTTLES OF SOFT FRUIT, distinct.—*First Prize* (£1) to Miss C. R. Swain. *Second Prize* (10s.) to Mrs. R. Fletcher Hearnshaw, Fox Hill, Burton Joyce. *Third Prize* (7s. 6d.) to The Cathedral Dairy, 6 & 7 Eastgate, Exeter.

- Class 115.—THREE BOTTLES OF STONE FRUIT, distinct.—*First Prize* (£1) and Silver Medal to Mrs. R. Fletcher Hearnshaw. *Second Prize* (10s.) to G. W. Weatherill. *Third Prize* (7s. 6d.) to Miss C. R. Swain.
- Class 116.—SIX BOTTLES OF VEGETABLES, of not less than 4 Varieties (Tomatoes admitted).—*First Prize* (£2) to Miss C. R. Swain. *Second Prize* (£1) to Mrs. M. E. Parlour.
- Class 117.—THREE BOTTLES OF VEGETABLES, distinct.—*First Prize* (£1) to Mrs. R. Fletcher Hearnshaw. *Second Prize* (10s.) to Miss C. R. Swain. *Third Prize* (7s. 6d.) to Mrs. M. E. Parlour.
- Class 118.—THREE JARS OF JAM (1 lb. each), dissimilar, any Variety.—*First Prize* (£1) to The Cathedral Dairy. *Second Prize* (10s.) to Miss M. I. Brown, Eastlands, Bradwell-on-Sea. *Third Prize* (7s. 6d.) to Miss M. W. Goldsmith, The Dairy, Whitney-on-Wye.

HONEY, WAX, &c.

- Class 119.—SIX JARS OF LIGHT-COLOURED EXTRACTED HONEY (1 lb. each approximate weight).—*First Prize* (£1) to W. B. Marchington, 64 Petteril Street, Carlisle. *Second Prize* (15s.) to Messrs. Griffiths & Aubrey, Upper Lliedi Reservoir, Felinfol, Llanelly. *Third Prize* (12s. 6d.) to J. Birkett, Blundell's Lane, Rainhill. *Fourth Prize* (10s.) to W. Trinder, Edwinstowe, Newark.
- Class 120.—SIX JARS OF MEDIUM-COLOURED EXTRACTED HONEY, other than Heather Honey (1 lb. each approximate weight).—*First Prize* (£1) to E. D. Lowes, Home for Orphans, Swanley. *Second Prize* (15s.) to L. W. Matthews, 25 Cray Road, Crockenhill, Swanley. *Third Prize* (12s. 6d.) to Major H. M. Thomson, Broomhill, Woodbridge. *Fourth Prize* (10s.) to G. Thomas, Causeway, Burwell.
- Class 121.—SIX JARS OF DARK-COLOURED EXTRACTED HONEY, including any Variety of Heather Mixture (1 lb. each approximate weight).—*First Prize* (£1) to Mrs. L. Hines, Watley, Twyford, Winchester. *Second Prize* (15s.) to E. C. R. White, The Poplars, Winterbourne Gunner, Salisbury. *Third Prize* (10s.) to A. E. Warren, Old Lane Apiary, Simpson.
- Class 122.—SIX JARS OF GRANULATED HONEY, of 1920 or any previous year (1 lb. each approximate weight).—*First Prize* (£1) to W. Trinder. *Second Prize* (10s.) to J. Silver, 17 Clyde Road, Croydon. *Third Prize* (7s. 6d.) to Major H. M. Thomson.
- Class 123.—SIX SECTIONS OF HONEY, other than Heather (size 4½ by 4½, 1 lb. each approximate weight).—*First Prize* (£1) to Messrs. Robson & Cessford, 5 Railway Cottages, Riding Mill, Northumberland. *Second Prize* (15s.) to G. Marshall, Norwell, Newark. *Third Prize* to W. M. Robson, Cheviot Street, Wooler, Northumberland.
- Class 124.—DISPLAY OF COMB AND EXTRACTED HONEY, of any year (approximately 100 lbs. in weight, shown on a space of 3 ft. by 3 ft.).—No Entry.
- Class 125.—WAX (not less than 2 lbs. in 2 cakes only; the produce of the Exhibitor's Apiary; extracted and cleaned by the Exhibitor or his Assistants).—*First Prize* (15s.) to Major H. M. Thomson. *Second Prize* (10s.) to E. C. R. White. *Third Prize* (7s. 6d.) to Mrs. A. Herring, Brauncewell Lodge, Wellingore, Lincoln.
- Class 126.—WAX (not less than 3 lbs.; the produce of the Exhibitor's Apiary; extracted and cleaned by the Exhibitor or his Assistants; to be shown in shape, quality and package suitable for the retail trade).—*First Prize* (15s.) to E. C. R. White. *Second Prize* (10s.) to F. A. Bahns, 73 Ravensdale Road, Stamford Hill, London, N.
- Class 127.—INTERESTING AND INSTRUCTIVE EXHIBIT OF A PRACTICAL OR SCIENTIFIC NATURE, connected with BEE CULTURE, not mentioned in the

foregoing Classes.—*First Prize* (15s.) to Messrs. E. H. Taylor, Ltd., Welwyn, for "Floorboard to prevent robbing." *Second Prize* (10s.) to J. Silver, for "Set of 3 Queen Cages, showing 3 uses of same Cage."

Class 128.—THREE VESSELS OF COLONIAL EXTRACTED HONEY, as imported.—*First Prize* (Gold Medal) to The New Zealand Honey Producers Association, Ltd., Auckland, New Zealand.

ROOTS.

Class 129.—SIX SPECIMENS OF GLOBE MANGOLDS, drawn from a crop of not less than two acres.—*First Prize* (£3) to H. Morrison, M.P., Fonthill House, Tisbury. *Second Prize* (£2) to Lieut.-Col. W. M. Pryor, Lannock Manor, Stevenage. *Third Prize* (£1) to A. J. P. Isaac, New House Farm, Stratfield Turgis, Basingstoke.

Class 130.—SIX SPECIMENS OF GOLDEN TANKARD MANGOLDS, YELLOW FLESHED, drawn from a crop of not less than two acres.—*First Prize* (£3) to R. Thomas, Homri Farm, St. Nicholas, Cardiff. *Second Prize* (£2) to D. Thomas, Lydmoor Farm, St. Nicholas, Cardiff. *Third Prize* (£1) to J. R. Gregory, Heath Croft Farm, Saughton, Chester.

Class 131.—SIX SPECIMENS OF INTERMEDIATE RED OR YELLOW FLESHED MANGOLDS, drawn from a crop of not less than two acres.—*First Prize* (£3) to The Walthamstow Urban District Council, Walthamstow. *Second Prize* (£2) to T. Chettle, Manor Farm, Reading. *Third Prize* (£1) to P. Perry, The Grange, Ampleforth College, Malton.

Class 132.—SIX SPECIMENS OF SWEDES, PURPLE TOP, drawn from a crop of not less than two acres.—*First Prize* (£3) to T. Park, Longburgh Farm, Burghby-Sands. *Second Prize* (£2) to W. S. Webster, Beetham Hall, Milnthorpe. *Third Prize* (£1) to R. Moore, Outerthwaite Farm, Allithwaite.

Class 133.—SIX SPECIMENS OF SWEDES, BRONZE TOP, drawn from a crop of not less than two acres.—*First Prize* (£3) to J. H. Reid, Attiquin, Maybole, Ayrshire. *Second Prize* (£2) to W. S. Webster. *Third Prize* (£1) to W. Davidson, East Learmouth, Cornhill-on-Tweed.

Class 134.—SIX SPECIMENS OF SWEDES, GREEN TOP, drawn from a crop of not less than two acres.—*First Prize* (£3) to P. Topham, Brockley, Claines, Worcester. *Second Prize* (£2) to R. Moore. *Third Prize* (£1) to P. Perry.

Class 135.—SIX SPECIMENS OF TURNIPS, any one Variety, drawn from a crop of not less than two acres.—*First Prize* (£3) to P. Perry. *Second Prize* (£2) to R. Thomas. *Third Prize* (£1) to R. Paterson, Holms, Beattock, Dumfries.

Class 136.—COLLECTION OF ROOTS, &c., FOR CATTLE-FEEDING IN WINTER; to consist of six Specimens of not exceeding twelve Varieties, in as many distinct Types as possible.—*First Prize* (£5) to W. Watts, Ty Draw, Cowbridge. *Second Prize* (£3) to P. Perry. *Third Prize* (£2) to J. Bowden, Lance Levy Farm, Sheffield.

COLONIAL PRODUCE.

Class 137.—COLLECTION OF COLONIAL PRODUCE, to include Dairy Products.—*Gold Medal* to The Government of the Union of South Africa and to The Government of Ontario.

INVENTIONS, &c.

Class 138.—ANY NEW APPARATUS OR INVENTION RELATING TO THE DAIRY INDUSTRY, OR ONE SHOWING DISTINCT AND PRACTICAL IMPROVEMENT, ESPECIALLY AS TO SAVING OF LABOUR, not eligible for competition in any other Class, and not previously exhibited in competition at the Dairy Show.—*Silver Medal* to Messrs. A. Grabham & Co., 139 Englefield Road, London, N. 1, for "Cleansing and Sterilizing Apparatus for Milk Bottles"; The Irish

Dairymen, Ltd., 30 Lower Abbey Street, Dublin, for "Westfalia Direct-Drive Power Cream Separator"; The Eagle Range & Grate Co., 127 Regent Street, London, W. 1, for "Patent Eagle Premier Range and Semi-Independent Boiler"; Sidney Hole, Yew Tree Farm, Albourne, Hassocks, for "Patent Hygienic Milk Churn with Automatic Fastenings"; Messrs. Lawrence & Co., Ltd., 132-138 Latimer Road, London, W. 10, for "Improved Patent Capillary Hygienic Refrigerator"; The Dairy Supply Co., Ltd., Museum Street, London, W.C. 1, for "Astra Pasteurizer"; Messrs. Sutherland Thomson & Co., 31 Tooley Street, London, S.E. 1, for "Aluminium Starter Can"; E. B. Turpin, Derby Street, Macclesfield, for "Monarch Cheese Press Mould and Ejector"; Messrs. F. G. Phillips & Son, Ltd., Goodwin Street, London, N. 4, for "Improved Bottle Filler." *Bronze Medal* to Messrs. H. Stevenson & Sons, Ltd., Summerstown Works, London, S.W. 17, for "Corrugauza Wireless Seal Cap for Milk Bottles"; Messrs. Harris, Underhill & Co., Ltd., West India House, Baldwin Street, Bristol, for "Fleury Feed Grinder, Type 'C'"; A. J. Clare, Market Place, Wells, for "Clarilac Milk Filter"; Messrs. Sutherland, Thomson & Co., for "Milk Thermo-densimeter or Thermolactometer."

JUNKET-MAKING CONTEST.

Class 139.—MADE WITH MILK AND CREAM.—*First Prize* (£2) to Miss C. Pantall, Keep Hill, Bromyard. *Second Prize* (£1) to Mrs. A. Blatchford, Ashleigh, Litton, Devon. *Third Prize* (10s.) to Miss W. Holton, Lingmill, Crawley.

BUTTER-MAKING CONTESTS.

Class 140.—SECTION A.—Open to those who have never won a Prize at any Show wherever held.—*First Prize* (£3) to Mrs. E. M. James, Talardd Dairy Farm, Golden Grove, Carmarthenshire. *Second Prize* (£2) to Miss E. B. Lyne, Trion House, Liskeard. *Third Prize* (£1) to Miss A. Wilkins, Woodgate Cottages, Danehill.

Class 140.—SECTION B.—*First Prize* (£3) to Miss A. Spencer, Pystill, Llanvair, Abergavenny. *Second Prize* (£2) to Miss W. G. Pole, Bassett, Bromley. *Third Prize* (£1) to Miss W. Armson, Blackladies, Brewood.

Class 140.—SECTION C.—*First Prize* (£3) to Miss H. Walker, Ulster Dairy School, Cookstown. *Second Prize* (£2) to Miss M. Davidson, Ulster Dairy School, Cookstown. *Third Prize* (£1) to Miss J. G. Morgan, Llwynderi, Raglan.

Class 141.—SECTION A.—Open to Students who have attended Classes at the British Dairy Institute, Reading, for not less than one month during the past two years.—*First Prize* (£3) to Miss W. G. Pole. *Second Prize* (£2) to Miss P. M. G. Clarke, University College, Reading. *Third Prize* (£1) to Miss Q. Baker, Basildon Park, Goring.

Class 141.—SECTION B.—*First Prize* (£3) to Miss E. G. Matthews, St. Andrew's Hall, Reading. *Second Prize* (£2) to Miss D. Dewdney, University College, Reading. *Third Prize* (£1) to Miss M. W. Hartley, Pennington House, Ravenglass.

Class 142.—SECTION A.—Open to Men and Women.—*First Prize* (£3) to Miss C. Pantall. *Second Prize* (£2) to Miss H. Walker. *Third Prize* (£1) to Miss E. Parry, Mitchell, Ledbury.

Class 142.—SECTION B.—*First Prize* (£3) to Miss M. W. Hartley. *Second Prize* (£2) to Miss D. Dewdney. *Third Prize* (£1) to Miss R. M. Gwillim, The Valletts, Allensmoor.

Class 142.—SECTION C.—*First Prize* (£3) to Miss R. D. Every, Tinnell, Landulph, Hatt. *Second Prize* (£2) to Miss M. Davidson. *Third Prize* (£1) to Miss E. M. Mortimer, The Gables, Box, Minchinhampton.

- Class 142.—SECTION D.—*First Prize* (£3) to Mrs. M. Pooley, Haughton, Shifnal. *Second Prize* (£2) to Miss D. E. Nicholas, Tremalgate, St. Cleer, Liskeard. *Third Prize* (£1) to Miss E. Skelding, L.C.C. Dairy School, Hutton, Preston.
- Class 143.—Open to First Prize Dairy Show Winners of 1921.—*First Prize* (£3 and Silver Medal) to Miss C. Pantall. *Second Prize* (£2) to Miss R. D. Every. *Third Prize* (£1) to Mrs. M. Pooley.
- Class 144.—CHAMPION CONTEST (open to Winners of First Prizes in the preceding Classes or at any Shows of the British Dairy Farmers' Association; champions of any year excepted).—*First Prize* (£5 and Silver Cup) to Miss R. James. *Second Prize* (£3) to Miss C. Pantall. *Third Prize* (£2) to Mrs. M. Jones.

MILKERS' CONTESTS.

(In addition to each First Prize a Silver Medal will be given.)

- Class 145.—Open to Men over 18 years (competitors of 1915 or prior thereto are not eligible to compete).—*First Prize* (£5) to J. Watson, Knightley, Eccleshall. *Second Prize* (£3) to W. Parton, Haughton Hall Farm, Tarporley. *Third Prize* (£2) to W. Lywood, Paynes Hay Farm, Braishfield.
- Class 146.—Open to Boys under 18 years.—*First Prize* (£5) to W. Watson, Knightley, Eccleshall. *Second Prize* (£3) to J. H. Slater, Meadow Farm, Kempston. Two Equal *Third Prizes* (£2 each) to A. Logan, Little Green Farm, Eynsham, and E. Parton, Haughton Hall Farm, Tarporley.
- Class 147.—Open to Women over 18 years (competitors of 1915 or prior thereto are not eligible to compete).—*First Prize* (£5) to Miss E. Stevens, Gate Street, Bramley. *Second Prize* (£3) to Miss M. Pugh, Upper House Farm, West Malvern. *Third Prize* (£2) to Miss M. K. Jones, The White House, Tupsley.
- Class 148.—Open to Girls under 18 years.—*First Prize* (£5) to Miss J. K. Heavens, South Godstone. *Second Prize* (£3) to Miss E. E. Muggeridge, Court Gardens Farm, Ditchling. Two Equal *Third Prizes* (£2 each) to Miss P. N. Green, Godinton, Ashford, and Miss R. Logan, Little Green Farm, Eynsham.
- Class 149.—CHAMPION CONTEST (open to First Prize Winners in preceding Classes or at any Shows of the British Dairy Farmers' Association; Champions of any year excepted).—Prize (*Gold Medal* and £2) to J. Watson.
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THE British Dairy Farmers' Association.



THE OBJECTS OF THE ASSOCIATION

are the improvement of

DAIRY STOCK AND DAIRY PRODUCE,

by encouraging the Breeding and Rearing of Stock for the special purpose of the Dairy; a larger and better production of Milk, Butter, Cheese, and Eggs; the Erection of Improved Dairy Buildings, and the Invention of New or Improved Dairy Utensils, Machinery, Implements, and Scientific Appliances. The Association also stimulates the Breeding and Rearing of Poultry, &c. By means of Papers in the Society's *Journal* (published annually), Annual Conferences in different dairy districts, Lectures, and Discussions, and in other ways, efforts are continually being made to disseminate a more thorough knowledge of Dairy husbandry. Moreover, prompt action is taken by the Association for the protection of the interests of Dairy Farmers in the event of their being threatened by legislation or by Departmental Orders.

Prizes to the value of about £3,500 are annually offered for competition at the Dairy Show held at the Royal Agricultural Hall, Islington, London.

It is difficult to over-estimate the importance and need of greater attention being paid to the Dairy industry. It is admitted that by improved modes of managing Milk and its products, the wealth obtained from the Milch Cows of the country could be increased most materially. The Council, therefore, appeal to Agriculturists of all classes, and Dairy Farmers in particular, to become Members of the Association, and practically aid in developing its usefulness.

The advantages of Membership comprise :—

- 1.—A free pass to all the Society's Dairy Shows, available each day during the Exhibition, with the privilege of admitting free (by ticket) a friend on any one day.
- 2.—The privilege of participating at specially low charges in the Dairy Conferences at home or abroad, organised by the Association.
- 3.—The Exhibition of Live Stock, Dairy Produce, and Utensils, at a reduced scale of fees to those whose subscriptions for the past three years and current year are paid.
- 4.—A copy (free by post) of the *Journal* of the Association, published annually.
- 5.—Analyses by the Analytical and Consulting Chemist, at low fees, of samples of milk, cream, butter, cheese, feeding stuffs, water, soil, manures, &c., and advice on dairy matters connected with his Department.

- 6.—Professional advice and assistance at a reduced scale of charges, in any case of disease among the live stock of the farm.
- 7.—Examinations by the Consulting Pathological Bacteriologist, for particular pathogenic or disease-producing organisms.
- 3.—Investigations by the Consulting Dairy Bacteriologist into the cause of trouble or taints in dairy produce.
- 9.—In any case of hardship due to administration of legal or other regulations, Members are recommended to at once send details of such case to the Secretary, who will submit them to the Committee appointed to deal with such matters, after when advice and assistance will be given by the Association.

The Annual Subscription is £1, but Dairy Instructors and Students are admitted on payment of 10s. 6d. per annum. The latter sum entitles Dairy Instructors to all privileges, except the reduced fees for exhibition at the Shows.

Members' Veterinary Privileges.

Members of the Association who require professional assistance in any case of disease among their animals must apply direct to the Consulting Veterinary Surgeon, Professor G. H. WOOLDRIDGE, Royal Veterinary College, Camden Town, London, N.W. 1, whose scale of charge is as follows :—

	£	s.	d.
Personal Consultation	0	10	6
Post-mortem Examination and Report	0	10	6
Consultation by Letter	0	5	0
Visit and Report, in case of an outbreak of disease, in addition to personal and travelling expenses, per day	2	2	0

Members' Botanical Privileges.

The Council have fixed the following rates of charge for the examination of Plants and Seeds for the *bond fide* and individual use and information of Members of the Association (not being Seedsmen), who are particularly requested to mention the kind of examination they require, *and to quote its number in the subjoined Schedule.*

No.	£	s.	d.
1.—A Report on the purity, and amount of nature of foreign materials, of a sample of seed	0	1	0
2.—A Report on the perfectness and germinating power of a sample of seed	0	1	0
Nos. 1 and 2 together	0	1	6
3.—Determination of the species of any weed or other plant, or of any epiphyte or vegetable parasite, with a report on its habits, and the means for its extermination or prevention	0	1	0
4.—Report on any disease affecting farm crops	0	1	0
5.—Determination of the species of a collection of natural grasses found in any district, with a report on their habits and pasture value	0	4	0

Instructions for Selecting and Sending Samples.

The utmost care must be taken to secure a fair honest sample. When possible, at least one ounce of grass and other small seeds should be sent, and two ounces of cereals or larger seeds. Grass seeds should be sent at least four weeks, and clover seeds two weeks before they are to be used. In collecting specimens of plants, the whole plant should be taken up, and the earth shaken from the roots. If possible, the plant must be in flower or fruit. They should be packed in a light box, or in a firm paper parcel. Specimens of diseased plants or of parasites should be forwarded as fresh as possible—either in a bottle, or packed in tinfoil or oil silk. All specimens should be accompanied with a letter specifying the nature of the information required, and stating any local circumstance (soil, situation, &c.) which, in the opinion of the sender, would be likely to throw light on the inquiry.

The charge for examination must be paid, in Postage Stamps or otherwise, at the time of application, and the carriage of all parcels must be prepaid. It must be distinctly understood that *no notice can be taken* of any application unless it is accompanied by the proper fee.

Members' Chemical Privileges.

Analysis will be made by the Association's Consulting Chemist at the following reduced fees:—

MILK (Fresh).	£	s.	d.
Estimation of Fat and Total Solids	0	2	6
Estimation of Fat, Casein, Albumin, Sugar, and Ash	0	12	6
MILK (Sour).			
Estimation of Fat and Total Solids	0	7	6
SKIMMED MILK			
Estimation of Fat and Total Solids	0	7	6
CONDENSED MILK.			
Estimation of Fat	0	7	6
Estimation of Fat, Casein, and Solids	0	12	6
Estimation of Cane Sugar (extra)	0	5	0
HUMANISED MILK.			
Complete Analysis	1	1	0
CREAM.			
Estimation of Fat	0	7	6
Estimation of Fat, Casein, and Solids	0	15	0
Examination for Foreign Fats (extra)... ..	0	10	6
BUTTER.			
Estimation of Water, Fat, Casein, and Ash	0	12	6
Examination for Foreign Fats	0	10	6

CHEESE.							£	s.	d.
Estimation of Water, Fat, Casein, and Ash ...	...	...	...	...	...	...	0	12	6
Examination for Foreign Fats (extra)...	...	...	...	...	...	...	0	10	6
RENNET.									
Examination of Strength ...	...	...	...	...	...	...	0	7	6
CAKES AND MEALS									
Estimation of Oil only ...	...	...	...	...	...	...	0	7	6
Estimation of Oil, Albuminoids, Carbo-hydrates, &c. ...	...	...	...	...	...	...	0	15	0
GRASS, SILAGE, ROOTS, &c.									
Estimation of Oil, Albuminoids, Carbo-hydrates, &c. ...	...	...	...	...	...	...	1	10	0
MANURES.									
Estimation of Soluble Phosphoric Acid ...	...	...	...	...	...	...	0	7	6
Estimation of Soluble and Insoluble Phosphoric Acid ...	...	...	...	...	...	...	0	10	0
Estimation of Citric Soluble Phosphoric Acid ...	...	...	...	...	...	...	0	10	0
Estimation of Nitrogen... ..	...	...	...	...	...	...	0	7	6
Estimation of Potash ... ..	...	...	...	...	...	...	0	7	6
SOIL.									
Estimation of Lime ... ..	...	...	...	...	...	...	0	7	6
Analysis and Report ... ..	...	...	...	...	...	...	2	2	0
WATER.									
Analysis for Drinking or Dairy Purposes ... ..	...	...	...	...	...	...	1	1	0
POISONS.									
Examination of a Substance for Mineral Poisons ... ..	...	...	...	...	...	...	2	2	0
Examination for Organic Poisons (Alkaloids, &c.) ... ..	...	...	...	...	...	...	3	3	0
CIDER AND FERMENTED DRINKS.									
Estimation of Alcohol ... ..	...	...	...	...	...	...	0	7	6
Estimation of Alcohol, Sugar, Acidity, &c. ... ..	...	...	...	...	...	...	0	15	0
PRESERVATIVES.									
Examining a Substance for Boracic Acid or Salicylic Acid, &c., for each Substance sought... ..	...	...	...	...	...	...	0	2	6
Estimation of the quantity of Boracic Acid ... ..	...	...	...	...	...	...	0	10	6
Analysis of a Preservative ... ..	...	...	...	...	...	...	1	1	0
CONSULTATION									
For Letter in reply to Enquiry... ..	...	...	...	...	...	...	0	5	0
For Personal Interview ... ..	...	...	...	...	...	...	0	10	6
For Special Consultation ... ..	...	...	...	...	...	...	1	1	0

NOTE.—The Consulting Chemist will be prepared to quote reduced terms to members requiring a number of analyses at frequent intervals.

Instructions for Taking Fair Samples for Analysis.

Dairy Produce.—Milk should be sent in a well-corked 8-oz. clear bottle. The milk should quite fill the bottle. Butter or cheese, about 8 ounces ; the former in a gallipot well tied down.

Soils.—A block of soil about four or five inches square, and nine inches deep, should be sent in a strong box by rail.

INVESTIGATIONS BY MR. F. J. LLOYD, F.I.C., F.C.S., 47, Fillebrook Road, Leytonstone, London, E. 11, INTO THE CAUSES OF TROUBLE OR TAINTS IN MILK, CREAM, BUTTER, OR CHEESE.

MILK.	£	s.	d.
Microscopical examination	1	1	0
Microscopical and cultural examination for a particular organism ...	2	2	0
Experimental and cultural examination for a particular organism	£5	5	0 to 10 10 0
CREAM, BUTTER, CHEESE.			
Microscopical examination	1	1	0
Microscopical and cultural examination...	2	2	0
PASTEURISED OR STERILISED MILK.			
Microscopical examination for bacteria	0	5	0
Estimating number of bacteria present	0	15	0
Cultural examination of bacteria present	2	2	0

Directions for Sending Samples.

Samples of milk or water (one quart) and cream (half pint) should be forwarded in wide-mouthed stoppered bottles which have previously been thoroughly cleaned, and then rinsed several times with very hot, almost boiling, water.

Butter is best sent in a $\frac{1}{2}$ -lb. brick or roll, just as it was made up, wrapped in grease-proof paper, and packed in a box.

If the *Cheese* is small, send a whole one; otherwise forward a square block of not less than one pound and not a wedge-shaped piece. Wrap in grease-proof paper and pack in a box.

All samples should be sent by the speediest method possible. They ought not to arrive either on Saturday or Sunday.

Samples to be examined for disease-producing organisms should be forwarded to Dr. Andrewes, Pathological Laboratory, St. Bartholomew's Hospital, London, E.C. 1. Members are requested to note that in the case of examination for the tubercle bacillus the method of animal inoculation, which experience has shown to be the only reliable one, will be alone used. It is impossible to carry out the process of sedimentation necessary for the detection of tubercle bacillus in milk which is received in a curdled condition. The report cannot be sent for a period of four to six weeks from the time the sample is received, but in the case of other pathogenic organisms the time required is much shorter. Samples to be examined for organisms producing taints in dairy produce should be forwarded to Mr. F. J. LLOYD, F.I.C., F.C.S., 47, Fillebrook Road, Leytonstone, London, E. 11.

THE BRITISH DAIRY INSTITUTE, READING.

The British Dairy Institute was established at Aylesbury in 1888, by the British Dairy Farmers' Association, and several hundred Students were successfully trained there in different branches of dairy work. In order that Students might have an opportunity of combining with the practical study of dairying a more complete scientific instruction, the Institute was, in 1896, moved to Reading, and placed under the management of a Committee representing the British Dairy Farmers' Association and the University College, Reading.

The Institute contains large milk-receiving, butter-making, and milk-testing rooms; rooms for the manufacture of pressed, unpressed, and soft cheeses; and rooms for the ripening and drying of different varieties of cheese; besides reading, lecture, and common rooms. It is equipped with the best modern apparatus for the manufacture of dairy produce, including power-driven separating and buttermaking plant, and cold storage plant.

The instruction given is both practical and theoretical, and is arranged to suit the requirements of those who need either elementary or advanced dairy instruction, or who wish to perfect themselves in the manufacture of any special variety of dairy produce. Instruction is provided for students who wish to specialize in Bacteriology or Chemistry applied to dairying.

The Institute is open throughout the year, except during the Winter Vacation of eight weeks, which commences about the middle of November.

The Courses at the Institute are open to men and women above the age of 16 years. Students may join at any time while the Institute is open, and for any period not less than a week, but those who desire to take a thorough short course in buttermaking or cheesemaking are recommended to attend the Six Months' or Three Months' Joint Course in Dairying.

The manufacture of hard-pressed and soft cheeses is taught during the whole of the time when the Institute is open, but Stilton and other blue-veined varieties are not made until May.

Instruction is given in buttermaking, clotted-cream making, the testing and analysis of milk, the management of various types of separators, the handling and care of milk, and the preparation of starters, &c. Lectures and demonstrations are usually given in the afternoons, the mornings being chiefly devoted to practical dairy work.

Practical and theoretical instruction in buttermaking and cheesemaking (including hard-pressed, blue-veined, and soft cheese), £1 per week; £10 for three months; £18 for six months.

Practical and theoretical instruction in buttermaking only, 10s. per week (or part of week).

A full Prospectus will be sent on application to the Secretary, British Dairy Institute, Reading.

B. RAVENSCROFT,

Secretary, B.D.F.A.

28, Russell Square, London, W.C. 1.

Forty-sixth Half-yearly Report of the Council to the Members, presented to the Meeting held at the Dairy Show, Royal Agricultural Hall, Islington, London, N. 1, on October 19th, 1921.

At this Half-yearly Meeting of Members the Council have pleasure in stating that the Membership is on the upward grade, and it is noted with keen satisfaction that many of the new entrants are of that community so consistently supported by the Association—Poultry Farmers.

Your Council spent much time and energy in organising a Dairy Conference to be held in the North of England, but as only 21 Members expressed their readiness to join the Conference Party it was deemed necessary to cancel the fixture.

It will be observed that the entries at this present Dairy Show are numerically greater than upon any previous occasion, and while it is a source of gratification to your Council that the Show should be so popular, alike with the exhibitors and visitors, it is a matter for regret that the time has arrived when entries must be limited on account of the space available at this Hall.

The Council regret to report the death of Mr. John Kendrick, a Council Member who had devoted a long life to the interests of Dairy Farming.

Lord Elveden, C.B., C.M.G., has kindly permitted the Council to nominate him as President-elect for 1922, and his Lordship's name will be submitted to this Meeting.

The Medal Distribution Scheme is still popular with kindred Societies, and this year 16 Silver and 4 Bronze Medals have been offered and awarded at Local Shows.

For the Examinations held at the British Dairy Institute, Reading, 20 Students have sat for the Diploma Certificate, 41 for Cheesemaking, and 60 for Buttermaking Certificates. Of these 11 have gained the Diploma, 28 the Cheesemaking Certificate, and 42 the Buttermaking. The number of Students from the British Dairy

Institute who succeed in gaining the Association's Diploma and Certificates is a testimony to the efficiency of its teaching, and small wonder it is that many applicants for instruction at this Institute have to be refused owing to the limited accommodation.

The Examinations conducted by the Association at the University College of South Wales, Cardiff, and at the East Anglian Institute, Chelmsford, have resulted in the granting of 17 Certificates for Buttermaking and 11 for Cheesemaking.

The Council feel that every effort should be made by the Association to promote the cleanest possible methods of producing and distributing milk so as to obviate any necessity for drastic Government interference with the Dairy Industry, which they deem calculated to injure both the producer and the consumer of milk.

Your approval will be asked at this Meeting in support of the following list of Vice-Presidents :—

The Marquis of Crewe, K.G., Crewe Hall, Crewe.
Lord Northbourne, Betteshanger, Eastry, S.O., Kent.
Lord Kenyon, Gredington, Whitchurch, Salop.
Lord Strachie, Sutton Court, Pensford, Bristol.
Major Lord O'Hagan, Pyrgo Park, Havering-atte-Bower, Essex.
Lord Desborough, K.C.V.O., Taplow Court, Taplow, Bucks.
Lord Bledisloe, K.B.E., Lydney Park, Gloucestershire.
Sir Gilbert Greenall, Bart., C.V.O., Walton Hall, Warrington.
Sir Mark J. McTaggart Stewart, Bart., Southwick, Dumfries, N.B.
S. Palgrave Page, J.P., 27, Oakwood Court, London, W.14.
John Welford, J.P., Cumberland House, Kensington, W.
G. Titus Barham, Sudbury Park, Wembley, Middlesex.

Members of the Council named below, retire in accordance with the Articles of Association, and have been proposed for re-election :—

Edward C. Ash, Dallinghoo Hall, Wickham Market, Suffolk.
Major E. W. Caddick, The Glyn, St. Weonards, Hereford.
R. H. Evans, Madryn Castle Farm School, Pwllheli, North Wales.
John Evens, Burton, near Lincoln.
W. J. Golding, Bowens, Penshurst, Kent.
James Mackintosh, University College, Reading, Berks.
Primrose McConnell, North Wycke, Southminster, Essex.
Sir Sidney J. Pocock, J.P., Surbiton Hall, Kingston-on-Thames.
J. L. Shirley, Silverton House, Woughton, Bletchley, Bucks.
C. W. Walker-Tisdale, The Dairy, Northallerton, Yorks.

As there were only two vacancies and only two nominations received at the time fixed for expiry, September 5th, the following named gentlemen are automatically elected to the Council, thus obviating the necessity for a ballot :—

Robert Wallace, Swangleys, Knebworth, Herts., proposed by Captain R. G. Buxton, seconded by Stuart Heaton.

Harold Corrie, Lowfield Heath, Surrey, proposed by W. J. Golding, seconded by T. W. Bridger of Messrs. Fowler and De La Perrelle.

Mr. Herbert J. Page, who for so many years has been responsible for the Auditing of the Association's Accounts, will be proposed for re-election as the official Auditor.

The undernoted Resolutions were passed on April 6th of this year :—

“That this Association welcomes the recent decision of the Ministry of Health which modifies the Departmental Order authorising Local Authorities to retail milk for the benefit of certain special classes of persons at less than the economic price in the absence of proved necessity and the previous authority of the Ministry.”

And on September 14th :—

“That this Council, having had its attention called to the fact that a charge of about 1½d. per quart is now thrown upon London milk consumers as representing wages alone paid in connection with milk distribution in London, regards such charge as involving a serious injustice both to the consumer and also to the producer of milk and considers that in the present precarious position of the Milk industry it ought to be reduced substantially forthwith.”

The table on next page gives comparative details of the entries at the Dairy Show with those of the past twelve years.

THE FOLLOWING TABLE GIVES COMPARATIVE DETAILS OF THE ENTRIES AT THE DAIRY SHOW WITH THOSE OF THE PAST TWELVE YEARS.

	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1919.	1920.	1921.
Cattle	240	237	247	232	288	222	210	286	234	204	292	384	455
Milking and Butter Tests ...	247	245	224	236	264	213	209	265	167	198	334	492	614
Goats	51	48	72	84	75	81	105	110	85	116	115	109	101
Poultry	3,347	3,081	3,280	2,997	3,259	3,300	3,350	3,840	3,089	2,653	2,736	4,317	4,348
Pigeons	2,573	2,604	2,564	2,282	2,280	2,226	2,496	2,467	2,291	2,755	2,760	3,259	3,272
Poultry and Pigeon Appliances	55	65	50	37	—	—	—	—	—	—	—	—	—
Cheese	255	420	357	355	362	249	343	395	301	271	342	462	406
Bacon and Hams	39	57	76	55	104	58	71	89	67	45	—	34	56
Butter	578	593	668	535	525	484	618	549	371	339	242	286	322
Cream	42	35	47	42	47	26	48	43	27	20	16	19	32
Skim-milk Bread, &c	159	118	135	115	98	72	83	64	46	65	40	40	—
Honey, &c.	118	67	85	98	96	87	95	106	126	77	20	49	63
Bottled Fruits and Vegetables	—	—	—	—	—	—	—	—	—	—	—	45	25
New and Improved Inventions	17	33	37	31	34	21	25	41	24	6	23	14	38
Roots	156	177	181	218	196	172	190	190	59	51	80	144	148
Buttermaking Contests	199	200	207	120	145	165	165	141	97	101	110	86	162
Milkers' Contests	121	135	132	126	122	153	119	137	85	82	77	80	98
Junket-making Contest	—	—	—	—	—	—	—	—	—	—	—	7	8
Colonial Produce	—	—	—	—	—	—	—	—	—	—	—	2	2
	8,197	8,175	8,362	7,553	7,895	7,529	8,127	8,723	7,069	6,963	7,187	9,829	10,150

By order of the Council,

B. RAVENSCROFT, *Secretary*.

FORTY-SIXTH

ANNUAL REPORT OF THE COUNCIL

to the General Meeting of Members,

Wednesday, 5th April, 1922.

The Council have great pleasure in presenting the 46th Annual Report to the Members, and it shows continued advancement of the Association's activities.

The amount received from Members' subscriptions is nearly £200 more than before the War.

At the close of 1920 there were 1,087 Members ; 151 new Members have been elected since, and 63 have resigned, died, or been struck off the Register, leaving a total of 1,175, made up of 1,071 Annual, 99 Life, and 5 Honorary Members.

By the affiliation of the English Guernsey Cattle Society, The British Friesian Cattle Society, and the Essex Agricultural Society, and the dissolving of the Lancashire Farmers' Association, the number of Affiliated Societies is increased from 14 to 16, each sending a delegate to the Council.

The Financial Statement to the end of December, 1921, is attached hereto.

The Colonial Schedule for the Dairy Show, 17th, 18th, 19th, and 20th October, 1922, was issued to the Agents-General for the Colonies in December as last year, and also despatched direct to the Creameries.

Mr. Harold Corrie, of Heath House Farm, Lowfield Heath, Surrey, and Mr. Robert Wallace, of Swangley's Farm, Knebworth, Herts, were elected members of the Council in place of Mr. Stanley Blundell and Mr. Sam Woodiwiss, who both resigned.

EDUCATION.

The Association has held five Examinations in the year, and there were 146 Candidates, who entered at the following centres :—

At the University College of South Wales and Monmouthshire, Cardiff, on 28th and 29th April, 7 Candidates entered for Butter-making, and on 27th, 28th and 29th July, 7 for Cheesemaking.

At the British Dairy Institute, Reading, on 14th, 15th, 16th, and 17th June, 41 entered for Buttermaking and 16 for Cheesemaking, and on the 20th, 21st, 22nd, and 23rd September, 20 for the Diploma, 19 Buttermaking, and 25 Cheesemaking.

At the East Anglian Institute, Chelmsford, on 18th, 19th, 20th, and 21st July, 6 entered for Buttermaking and 15 for Cheesemaking.

The following Diplomas and Certificates were awarded :—

	Diploma.	Butter- making.	Cheese- making.
British Dairy Institute, Reading ... (June)	—	30	11
Do. do. (Sept.)	11	12	17
University College, Cardiff (April)	—	6	—
Do. do. (July)	—	—	7
East Anglian Institute, Chelmsford ... (July)	—	4	11
	11	52	46

MEDAL SCHEME.

There were 23 applications for Medals given under the Medal Distribution Scheme.

The following grants were made :—

	Silver.	Bronze.
Dairy Cattle	9	—
Butter	5	2
Cheese	1	—
Buttermaking	1	1
Examination	2	2
	18	5

DAIRY SHOW.

The Dairy Show this year was by far the most successful the Association has ever held, both in the number of exhibits—which were over 10,000—and, judging also from the reports of Standholders, as to business transacted.

Two new sections were added :—

(1) Eight Classes were provided for qualified Milk Recorded Cows.

(2) Class 87—Bacon Pigs. This Class consisted of six pigs entered by each competing Breed Society, and exhibited and judged as Bacon.

The numbers entered in the Milking Trials and Butter Tests were by far and away the largest on record, and as they had increased to the enormous number of 614, it was to the credit of the judges that the results were made known as early as they were.

There is every hope that at future Shows there will be a model working dairy fitted up in the King Edward's Hall to cope with the vast amount of milk which has to be cooled and separated for the cream required in the centre dairy for the buttermaking competitions, as also for distributing the skim milk.

The wonderful collections and fine display made by the South African and Ontario Governments were quite one of the features of the Show. The entries of Poultry, Pigeons, and Goats, were so numerous that the Council very reluctantly had to restrict the number on the account of lack of space. There was quite a record number of New Inventions.

Resolutions, as under, were passed at the half-yearly Meeting held on the 19th October, 1921 :—

“ That this Meeting requests His Majesty's Government to take steps without delay to prevent wheat being imported into Great Britain without its offals, and to prevent wheat offals being exported to other countries to the detriment of British Stock owners.”

“That this General Meeting of the British Dairy Farmers’ Association, while objecting to any form of control, urges the Government to frame its agricultural policy with a view to largely increasing the number of cows and pigs kept and potatoes grown in this country”:

16th November, 1921:—

(a) “This Council regrets the articles disparaging the use of English fresh milk lately appearing in the *Daily Express* coincident with advertisements of foreign condensed milk, as likely to lead to the substitution of condensed for fresh milk, to the harm of the consumer, especially infants, and to the increase of imports of foreign produce to the disadvantage of British agriculture.”

(b) “This Council entreats the Government to make such reasonable regulations for the control of milk as may be necessary to guard it from exaggerated and misleading journalistic efforts of the nature of the articles recently appearing in the *Daily Express*, and emphasises the importance that every care must be taken to ensure its absolute cleanliness.”

(c) “This Council requests the Ministries of Agriculture and Health to take steps to impress upon the public, and especially those concerned with baby feeding, the unequalled food value of fresh milk, to the great advantage of national physique and British agriculture.”

and at the Council Meeting, 7th December:—

“That this Council, after considering the Report of the Royal Commission on the Importation of Live Stock, strongly protests against their findings on the question of milk-production, as being totally opposed to the weight of evidence offered before them and calculated to shake the confidence of the British farmer.”

Cr.	STATEMENT OF ASSETS AND LIABILITIES, December 31st, 1921.				Cr.			
	LIABILITIES.	£	s.	d.	£	s.	d.	£
Sundry Creditors	181	14	0	ASSETS.			
" " on account of Dairy	Investments at Cost Price :—			
Show, 1921	397	18	1	£500 L. & S. W. Railway 3 per cent. Debenture Stock	..	265	0 0
Conference Account	£500 L. & N. W. Railway 3 per cent. Debenture Stock	..	280	0 0
Surplus of Assets over Liabilities—at December 31st, 1920	6,411	11	4	£500 India 3 per cent. Stock	..	265	0 0
Excess of Income over Expenditure	1,613	18	0	£2,000 5 per cent. War Stock	..	1,701	9 0
					£1,500 3 per cent. London County Council Stock	..	783	17 0
					£400 6 per cent. Hertfordshire Stock	..	389	1 0
					£2,000 Metropolitan Water Board "B" 3 per cent. Stock	..	1,037	13 0
								4,722 0 0
					Furniture	.. ..	151	8 7
					Less 10 per cent. depreciation	.. ..	15	2 11
					British Dairy Institute: Value of Appliances at Reading	.. ..		136 5 8
					Sundry Debtors	.. ..	3	0 0
					" " on account of Dairy	.. ..	
					" Show, 1921	.. ..	117	14 0
					Cash on Deposits	.. ..	2,000	0 0
					Cash at Bank and in hand	.. ..	1,341	4 8
								3,341 4 8
					* The value, according to Market Price, of these Investments at 31st December, 1921, was			£8,606 3 7
					£5,657 (s. rd.)			

REPORT OF THE AUDITORS TO THE MEMBERS OF THE BRITISH DAIRY FARMERS' ASSOCIATION.

We have audited the foregoing Statement of Assets and Liabilities and the Income and Expenditure Account with the books and accounts of the Association. We have received all the information and explanations we have required. In our opinion such Statement of Assets and Liabilities is a full and fair statement containing the particulars required by the Regulations of the Association, and properly drawn up so as to exhibit a true and correct view of the state of the Association's affairs according to the information and explanations we have received and as shown by the Books.

(Signed) HERBERT J. PAGE,
Chartered Accountant,
HARRY DUNN
PERCY T. HAY } Auditors.

14th February, 1922.

British Dairy Farmers' Association.

MEDAL SCHEME.

Special Prizes at Educational Institutions and Country Shows.

The Council of the British Dairy Farmers' Association is prepared to consider applications from Educational Centres and Approved Societies in the United Kingdom for their Silver and Bronze Medals to be awarded in connection with dairying and dairy farming under the following conditions, viz. —

1. All applications must be made on the official form and must clearly state the object for which the Medal or Medals are required.
2. Only one application from any Institution or Society can be considered in any one year.
3. The application must be repeated annually if Medals are again required.
4. A copy of the Proposed Prize List, showing the Conditions of the Award of the Medal and the name of the judge, should accompany the application, and the offer of a Medal cannot be confirmed until the Prize List has been approved.
5. The British Dairy Farmers' Association stipulates that no entry fee shall be charged in respect of these Medals, they being offered as *Special Extra Prizes*.
6. Notification of the award, with the winner's full name and address, to be forwarded to the Secretary, British Dairy Farmers' Association, 28, Russell Square, London, W.C. 1, within 14 days of the award being made.
7. A person may not receive more than one Medal under this Scheme for the same subject or exhibit during any one year.

In the event of any dispute as to the interpretation of these Rules, the Council of the British Dairy Farmers' Association reserve full power of decision, and in the event of the Medal not being awarded in accordance with the above Rules and Conditions, the Council reserve the right to withhold the Medal altogether.

BY ORDER OF THE COUNCIL.

AWARDS DURING 1921.

Applicant.	Show or Examination Held at	Date.	Medal.	Winner and Object.
University College of South Wales and Monmouthshire	Cardiff ...	April 28 & 29	Bronze	Miss Edith M. Jones gaining highest points in Butter-making Examination.
Devon County Agricultural Association	Tavistock ...	May 24, 25 & 26	Silver	J. Coaker & Son, for South Devon Cow, "Daisy 5th," as best Dairy Cow in Class 66.
Suffolk Agricultural Association	Beccles ...	June 2 & 3	Bronze	Miss L. Learmouth, as Champion Buttermaker.
Yealampton Agricultural Association	Yealampton ...	June 8	Silver	Mrs. J. T. Dennis, for best exhibit of Butter.
Essex Agricultural Society	Rochford ...	June 8 & 9	Silver	Capt. Allan Skelton, for Dairy Shorthorn Cow, "White Rose," as best Dairy Cow or Heifer in Classes 92 and 93.
Staffordshire Agricultural Society	Burton-on-Trent	June 15 & 16	Silver	Henry Bickford, for Dairy Shorthorn Cow, "Standerford Dolly 23rd," as best Dairy Cow in Class 51.
"	"	"	Bronze	The Dowager Lady Burton, for best exhibit of Butter.
Sussex County Agricultural Society	Hove ...	July 13 & 14	Silver	The Hache Herd, for British Friesian Cow, "Brooklands (imp.) Sietske 4th," as best Dairy Cow in Milk.
Cambridgeshire and Isle-of-Ely Agricultural Society	Wisbech	July 20	Silver	Chivers & Sons, Ltd., for Dairy Shorthorn Cow, "River Meadow Pipit 4th," as best Dairy Shorthorn Cow or Heifer in Classes 48, 49 or 50.
Yorkshire Agricultural Society	Leeds ...	July 20, 21 & 22	Silver	Miss Frances E. Mudd as Champion Buttermaker.

AWARDS DURING 1921.—*Continued.*

Applicant.	Show or Examination Held at	Date.	Medal.	Winner and Object.
University College of South Wales and Monmouthshire	Cardiff ...	July 27, 28 & 29	Silver	Miss Frances Burge, gaining highest points in Cheese-making Examination.
Hertfordshire Agricultural Society	... Hatfield	July 28 ...	Silver	Samuel Wallace, for "Beauty," as best Dairy Short-horn Cow.
Tring Agricultural Society	... Tring	Aug. 4 ...	Silver	Major G. J. Buxton, for Dairy Shorthorn Cow, "Astley Scraphina 6th," as best Dairy Shorthorn Cow or Heifer.
Denbighshire and Flintshire Agricultural Society	Wrexham	Aug. 11 ...	Silver	Samuel Dutton, for best exhibit of Cheese.
Moretonhampstead and District Agricultural Society	Moretonhampstead	Aug. 11 ...	Silver	F. R. Brook, for South Devon Cow, "Buttercup," as best animal in Classes 8 or 9.
"	"	"	Bronze	Mrs. D. Wills, for best exhibit of Butter—2 lb. Classes.
Middlewich and District Agricultural Society	Middlewich	Aug. 24 ...	Silver	Mrs. A. Cookson, for best exhibit of Butter.
Penistone Agricultural Society	... Penistone	Aug. 25 ...	Silver	G. Helliwell, for Lincolnshire Red Shorthorn Cow, "Retford Daisy," as best Dairy Cow in Milk in Classes 30, 34 or 35
Gloucestershire Root, Fruit and Grain Society	Gloucester	Nov. 9 ...	Silver	The Lady Bledisloe, for best exhibit of Butter.
Monmouthshire Education Committee...	Chepstow	Dec. 15, 16 & 17	Silver	Miss J. Collis, for knowledge in Practice and Theory of Dairy Work and Dairy Farming.
"	"	"	"	Miss R. James, for gaining highest marks for exhibits of Butter and Cheese.

British Dairy Farmers' Association.

PRIZE ESSAY ON A DAIRYING SUBJECT.

The Council offers a Prize of £10 for an Essay upon any practical or scientific subject relating to Dairy Farming or Dairying.

Preference will be given to one based on the original work and experience of the writer. Where the work of others is relied upon full references must be given, either in footnotes or by numbers (1), (2), &c., with a list of authorities at the end.

The Essay should not exceed 5,000 words, and must be received by the undersigned on 1st December, 1922.

An Essay must be sent in a sealed envelope, bearing a *nom de plume*, and in another sealed small envelope, also bearing the *nom de plume*, the Author must insert his name and address.

The Prize Essay will be the property of the Association. Others will be returned to their respective Authors, but the Association reserve the right to retain Essays on subjects suitable for inclusion in the Annual Journal, which will be paid for at the usual rate for literary contributions.

B. RAVENSCROFT,

Secretary,

28, Russell Square, London, W.C. 1.

THE
British Dairy Farmers' Association.

Suggestions to Farmers as to how best to ensure
 THE
CLEANLINESS OF THE MILK SUPPLY.

The attainment of a clean milk supply is largely dependent upon the action of Dairy Farmers themselves.

Every Dairy Farmer is financially interested in this question. Public doubt of the cleanliness of the milk supply means reduced demand for fresh milk. Public confidence means increased use of milk as food and drink—consequently a larger demand.

Any Dairy Farmer by want of reasonable care can jeopardise the reputation of the whole industry and thus destroy the good work of those whose efforts are to increase the consumption of milk.

The co-operation of every producer is confidently requested.

The main points to be emphasised are :—

- (1) That consumers are entitled to receive milk which is clean and wholesome.
- (2) That the precautions necessary to produce clean wholesome milk are easy, simple and inexpensive.

Briefly these precautions are :—

To keep the milk sheds and cows as clean as possible.

To clean the udders and, before milking, wipe them with a clean damp cloth, rinsed after every cow.

To use a partly covered milking pail.

To see that milkers milk with clean hands.

To strain the milk through a strainer fitted with a new disc of cotton wool at each milking.

To empty water from cooler before washing.

To rinse utensils in cold water. Thoroughly wash in hot water and soda and scald in boiling water or preferably, sterilise with steam or by boiling in water.

To stand utensils upside down to drain after cleaning and NOT to wipe them.

THIS ASSOCIATION APPEALS TO EVERY DAIRY FARMER TO PUT THESE PRECAUTIONS INTO OPERATION, BEING CONVINCED THAT IF PRODUCERS DO NOT TAKE MEANS TO ENSURE A CLEAN WHOLESOME MILK SUPPLY THE DEMAND FOR FRESH MILK WILL SERIOUSLY DIMINISH.

Correspondence on this subject will receive attention at the Offices of the Association, 28, Russell Square, London, W.C. 1.

British Dairy Farmers' Association.

EXAMINATION FOR THE B. D. F. A. DIPLOMA.

The Association grants to any Candidate who satisfactorily passes the necessary Examinations:—

A Diploma and Silver Medal for Proficiency in the Science and Practice of Dairying.

Candidates for the Diploma must have previously obtained the Butter and Cheesemaking Certificates of the Association,* and must produce satisfactory evidence that they have received not less than one year's scientific and practical instruction at some recognised centre for Dairying Instruction, and have spent at least twelve months on a Dairy Farm in addition to the time spent at the Centre.

The Examination will extend over three or more days, and will test (1) the knowledge and experience of the Principles and Practice of Dairying and Dairy Farming, and (2) the skill in making Butter and Cheese, of each Candidate.

Candidates will be required to answer, in writing, sets of questions within a given time, and will also be examined *viva voce*. They will be expected to possess a sound knowledge of all the subjects included in the following Syllabus. Candidates, if required, must produce their note-books of Lectures and Demonstrations attended.

Examinations for Diploma are held in the Autumn upon dates announced in the Agricultural and Dairy Press.

Entries will close 28 days prior to the date fixed for the Examination.

The Entry Fee is 20s.

SYLLABUS.

1. DAIRYING.

- (a) Milk.—The Food Value of Milk; The Yield of Milk from various Breeds; Secretion of Milk and Structure of the Udder; Milking by Hand and Machine; Handling of Milk from Cow to Dairy; Importance of Cleanliness; Production of Highest Grade Milk; Cooling of Milk; Sale of Milk; Influence of Food on the Yield, Flavour, and Fat Contents of Milk; Composition of Milk, Nature and Properties of its Constituents; Differences between Morning and Evening Milk and their Causes; Methods of Sampling and Simple Methods of Testing Milk, as the Lactometer, Creamometer and Centrifugal Fat Testers; Testing for Acidity; Causes of Fermentation; Colostrum, its Nature and Properties; the Keeping of Dairy Records; the Handling of Evening's Milk for Cheesemaking; Properties of Milk suitable for Cheesemaking; Taints in Milk—their Causes, Effects and Remedies; Tests for such Taints; the Ripening of Milk for Cheesemaking; Methods and Reasons for Ripening; use of Natural and "Culture" Starters; Pasteurization of Milk; Chilled Milk: their Subsequent Use for Cheesemaking; Special Testing of Milk, Whey, and Curd requisite in a Cheese Dairy; Utilization of Dairy By-products.
- (b) Cream.—The Various Methods of obtaining Cream; the Construction and Use of the Utensils Employed; Separators, the Construction and Use of the various Types; Composition of Cream, Separated Milk, Skimmed Milk and Butter-milk, with Simple Tests for Fat in same; the Ripening of Cream, Objects and Results; Changes during Ripening; Testing for Acidity; Natural and Artificial Ripening and Preparation of Starters; the Preparation of Cream for Churning; Preparation of Cream for Sale; Clotted Cream.

*Equivalent Certificates of recognised bodies will be accepted by the Association as evidence of sufficient training to justify entry for this Examination.

- (c) Butter.—The Various Methods of obtaining Butter, including the Churning of Whole Milk; Utensils required and the Preparation, Use and Care of same; the Process of Butter Manufacture in all its Details; Conditions which affect the Butter Yield; Circumstances affecting the Flavour, Texture, Colour and Keeping Properties of Butter; Dry-salting and Curing of Butter; Faults in Butter and their Causes; Composition and Properties of Good Butter; Composition and Causes of Inferior Butter; Methods of Judging Butter.
- (d) Cheese.—Rennet: its Preparation, Properties, and Action upon Milk; Testing its Strength; Storage of Rennet; Substitutes for Rennet; Annatto; a General Knowledge of the Manufacture of the Principal Varieties of Hard-pressed, Blue-veined, and Soft Cheeses, including the use of Wood and Metal Tubs and Jacketed Vats; Methods of Scalding; the Development and Control of Acidity in Curd; Salting and Brining in Cheesemaking; Bandaging; Ripening and Storing of Hard-pressed, Blue-veined and Soft Cheeses; Defects in Cheese and their Causes; Composition of Cheese; Composition and Utilization of Whey; the Manufacture of Whey Butter; the Equipment of a Cheese Dairy and its Cost; the Care of Utensils.

Candidates will be required to make one Hard-pressed Cheese, either Cheddar, Cheshire, or Derby, to be selected by the Examiner, and one Blue-veined Cheese, either Stilton or Wensleydale, to be selected by the Candidate. They must also have a knowledge of the manufacture of other varieties of Hard-pressed Cheese, and of Soft Cheese.

2. DAIRY FARMING

(a) A General Knowledge of Dairy Farm Management, including the Cultivation of Farm Crops, with a Special Knowledge of those employed in the Feeding of Dairy Stock.

(b) Foods and Feeding.—The Effects of various Foods on Milk and Dairy Products; Systems of Feeding and the Compilation of Rations.

(c) Live Stock.—Characteristics and Management of Different Breeds of Cattle; their Breeding and Rearing; Choice of Dairy Cattle for Special Purposes and Situations; Identification and Treatment of Common Ailments of Dairy Stock; Pigs and Poultry; Suitable Breeds for Use in Connection with a Dairy Farm and their Management.

(d) Buildings suitable for a Dairy Farm: their Situation, Construction, Ventilation, Drainage, &c.; Water Supply.

(e) Milk Records; Business Methods involved in Dairying; Book-keeping on a Dairy Farm.

(f) Improvement in Equipment and Methods on Dairy Farms: the Use of Score Cards.

3. CHEMISTRY.

(a) General.—The Chemical Elements and Constituents found in Milk Soils, Plants, Manures, Animals, and Foods: their Nature and Properties so far as they relate to Agriculture; the simpler Laws of Chemical Combination and Change so far as regards these Substances.

(b) Dairy.—The Composition and Properties of Milk, Cream, Butter, Cheese, and Dairy Products, and of all Substances used in the Dairy; Simple Methods of Analysis as applied to these Substances; the Chemical Changes which may take place in Milk, Cream, Butter, &c.; Water Supply.

4. BACTERIOLOGY.

(a) General.—Bacteria, their Form, Classification, Growth and Reproduction; The Microscope and its Use; Staining and Microscopic Examination of Bacteria; Methods of Isolation and Cultivation; Preparation of Culture Media; Fermentations and Chemical Changes produced by Bacteria; Enzymes and their Action; Effects of Heat, Cold, Sterilization, Pasteurization, Disinfectants, and Preservatives on Bacteria and Enzymes.

(b) Dairy Bacteriology.—The Bacteria of Milk and Dairy Products; Examination of Milk for Foreign Bodies, Sediment, Blood, Pus, and Pathogenic Organisms; the Bacteriology of Milk, Cream, Butter, and Cheese; Commercial Bacterial Preparations for use in the Dairy; Bacteria Injurious to Dairy Produce: their Source, Nature, and Treatment; Bacterial and other Standards in relation to the Cleanliness of Milk.

(c) Fungi (Moulds) and Yeasts.—Their Forms, Classification, and Growth; their Relation to Dairy Produce.

5. INSTRUCTION.

Capacity to impart Instruction.—Organisation of Dairy Courses suitable to different Districts.

Particulars and Entry Forms may be obtained from

The SECRETARY,

BRITISH DAIRY FARMERS' ASSOCIATION,

28, Russell Square, London, W.C. 1.

EXAMINATION FOR CHEESEMAKING CERTIFICATE.

The Association grants to any Candidate who satisfactorily passes the necessary Examination—

A Certificate of Merit for Proficiency in the Theory and Practice of Cheesemaking.

The Examination, which will extend over two or more days, will test the Theoretical Knowledge of the Candidates and their Practical Skill in Cheesemaking. Each Competitor will be required to answer, in writing, a set of questions within a given time, and will also be examined *viva voce*. On the same or following day a Practical Examination in Cheesemaking will take place.

Candidates for this Certificate must, at the time of entry, produce satisfactory evidence that they have received at least twelve months' instruction in the Theory and Practice of Cheesemaking, of which at least six months must have been spent at a recognised centre for dairy instruction. They must possess a sound knowledge of the subjects included in the following Syllabus.

Candidates will be required to make one Hard-pressed Cheese, either Cheddar, Cheshire or Derby, to be selected by the Examiner, and one Blue-veined Cheese, either Stilton or Wensleydale, to be selected by the Candidate. They must also have a knowledge of the manufacture of other varieties of Hard-pressed Cheese and of Soft Cheese.

Candidates are at liberty to bring their own utensils for the Practical Examination if they wish to do so.

Examinations for Cheesemaking Certificates are held twice a year, viz., in the Spring and Autumn, upon dates announced in the Agricultural and Dairy Press.

Entries will close 28 days prior to the date fixed for the Examination.

The Entry Fee is 10s.

SYLLABUS.

1. Milk.—The Food Value of Milk; The Yield of Milk from various Breeds; Secretion of Milk and Structure of the Udder; Milking by Hand and Machine; Handling of Milk from Cow to Dairy; Importance of Cleanliness; Production of Highest Grade Milk; Cooling of Milk; Sale of Milk; Influence of Food on the Yield, Flavour and Fat Contents of Milk; Composition of Milk, Nature and Properties of its Constituents; Differences between Morning and Evening Milk and their Causes; Methods of Sampling and Simple Methods of Testing Milk, as the Lactometer, Creamometer, and Centrifugal Fat Testers; Testing for Acidity; Causes of Fermentation; Colostrum, its nature and properties; the Keeping of Dairy Records; the Handling of Evening's Milk for Cheesemaking; Properties of Milk suitable for Cheesemaking; Taints in Milk, their Causes, Effects and Remedies; Tests for such Taints; the Ripening of Milk for Cheesemaking; Methods and Reasons for Ripening; use of Natural and "Culture" Starters; Pasteurization of Milk; Chilled Milk; their Subsequent use for Cheesemaking; Special Testing of Milk, Whey, and Curd requisite in a Cheese Dairy; Utilization of Dairy By-products.

2. Cheese.—Rennet: its Preparation, Properties, and Action upon Milk; Testing its Strength; Storage of Rennet; Substitutes for Rennet; Annatto; a General Knowledge of the Manufacture of the Principal Varieties of Hard-pressed, Blue-veined, and Soft Cheeses, including the use of wood and metal tubs and jacketed vats; Methods of Scalding; the Development and Control of Acidity in Curd; Salting and Brining in Cheesemaking; Bandaging; Ripening and Storing of Hard-pressed, Blue-veined and Soft Cheeses; Defects in Cheese and their causes; Composition of Cheese; Composition and Utilization of Whey; the Manufacture of Whey Butter; the Equipment of a Cheese Dairy and its Cost; the care of Utensils; the Detailed Principles and Practice requisite for the Manufacture of one of the following types of Cheese:—

(a) A Hard-pressed British Cheese (not less than 25 lbs. weight).

(b) A Blue-veined British Cheese (not less than 10 lbs. weight).

Particulars and Entry Forms may be obtained from

The SECRETARY,

BRITISH DAIRY FARMERS' ASSOCIATION,

28, Russell Square, London, W.C. 1

EXAMINATION FOR BUTTERMAKING CERTIFICATE.

The Association grants to any Candidate who satisfactorily passes the necessary Examination—

A Certificate of Merit for Proficiency in the Theory and Practice of Butter-making.

The Examination, which will extend over two or more days, will test the Theoretical Knowledge of the Candidates and their Practical Skill in Buttermaking. Each Competitor will be required to answer, in writing, a set of questions within a given time, and will also be examined *viva voce*. On the same or following day a Practical Examination in Buttermaking will take place.

Candidates for this Certificate must, at the time of entry, produce satisfactory evidence that they have received at least three months' instruction (not necessarily at a Dairy School) in the Theory and Practice of Buttermaking. They must possess a sound knowledge of the subjects included in the following Syllabus. They will be required to make Butter.

Candidates are at liberty to bring their own utensils for the Practical Examination if they wish to do so.

Examinations for Buttermaking Certificates are held twice a year, viz., in the Spring and Autumn, upon dates announced in the Agricultural and Dairy Press.

Entries will close 28 days prior to the date fixed for the Examination.

The Entry Fee is 5s.

SYLLABUS

1. Milk.—The Food Value of Milk; the Yield of Milk from various Breeds; Secretion of Milk and Structure of the Udder; Milking by Hand and Machine; Handling of Milk from cow to dairy; Importance of Cleanliness; Production of Highest Grade Milk; Cooling of Milk; Sale of Milk; Influence of Foods on the Yield, Flavour and Fat Contents of Milk; Composition of Milk, Nature and Properties of its constituents; Differences between Morning and Evening Milk and their causes; Methods of Sampling and Simple Methods of Testing Milk, as the Lactometer, Creamometer, and Centrifugal Fat Testers; Testing for Acidity; Causes of Fermentation; Colostrum, its nature and properties; the Keeping of Dairy Records.
2. Cream.—The Various Methods of Obtaining Cream; the Construction and Use of the Utensils employed; Separators, the Construction and Use of the various Types; Composition of Cream, Separated Milk, Skimmed Milk, and Butter-milk, with Simple Tests for Fat in same; the Ripening of Cream—Objects and Results; Changes during Ripening; Testing for Acidity; Natural and Artificial Ripening and Preparation of Starters; the Preparation of Cream for Churning; Preparation of Cream for Sale; Clotted Cream.
3. Butter.—The Various Methods of Obtaining Butter, including the Churning of Whole Milk; Utensils required, and the Preparation, Use, and Care of same; the Process of Butter Manufacture in all its details; Conditions which affect the Butter Yield; Circumstances affecting the Flavour, Texture, Colour, and Keeping Properties of Butter; Dry-salting and Curing of Butter; Faults in Butter and their causes; Composition and Properties of Good Butter; Composition and Causes of Inferior Butter; Methods of Judging Butter.

Particulars and Entry Forms may be obtained from

THE SECRETARY,

BRITISH DAIRY FARMERS' ASSOCIATION,

28, Russell Square, London, W.C. 1.

EXAMINATION FOR FACTORY MANAGER'S DIPLOMA.

Regulations and Syllabus, viz. :—

Candidates must hold the British Dairy Farmers' Association's Diploma or the National Dairy Diploma.

They must have subsequently spent at least six summer months in a Factory dealing with not less than 500 gallons of milk daily.

Candidates will write answers to a paper and be examined orally and practically on the following :—

1. Factory: the Site, Construction, and Requirements of a Factory.
2. Lighting and Power in the Factory.
3. Boilers, Engines, Shafting, Fittings, and Apparatus, their disposition and control.
4. Maintenance and Cleansing of Factory and disposal of Waste
5. Organisation of Labour and use of Labour-saving Devices.
6. Milk, management of, on arriving at Factory: Weighing, Sampling Testing, Recording, Cleaning, &c.
7. Methods of dealing with the Milk for (a) Sale; (b) Cream Production (c) Buttermaking; (d) Cheesemaking; (e) Other Products.
8. Refrigerating Machinery and its use.
9. Cold Stores and their Management.
10. Pasteurizing and Sterilizing Machinery and its use.
11. Cream, preparation of, for Market.
12. Butter: Manufacture and Treatment.
13. Cheese: Manufacture and Treatment.
14. Utilization of Bye-products.
15. Pig-keeping.
16. Business Management; Book-keeping; Stocktaking and Depreciation Contracts; Railway Rates and Conditions; Statements; Notices, &c
17. Law, so far as it affects the Factory, the Management, and the Produce, including main provisions of Factory and Workshop Act; Workmen's Compensation; Health Insurance; Employers' Liability; Rivers Pollution Act; Industrial and Provident Societies Act; Sale of Food and Drugs Act; Milk and Dairies Acts, and other Legislation as it affects the Working of Factories and the Manufacture and Sale of Dairy Produce.

The Entry Fee for each Candidate is fixed at £4 4s.

Particulars and Entry Forms may be obtained from

THE SECRETARY,

BRITISH DAIRY FARMERS' ASSOCIATION,

28, Russell Square, London, W.C. 1.

EXAMINATIONS

AT

LOCAL CENTRES.

In order to meet the convenience of Students at Dairy Schools, members of local Societies, and other persons, the Association will conduct Examinations for its Diplomas and Certificates at any place in the United Kingdom upon receiving satisfactory proof that the following conditions will be observed :—

That the School, Society, County Council, or other body requesting such an Examination to be held, undertake :—

- (1) To supply all necessary appliances and materials.
 - (2) To pay the fees and expenses of the Examiners.
 - (3) To supply the milk required free from preservatives and fit for Cheesemaking.
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Copies of Question Papers set at recent examinations may be obtained at 3d. per copy.

Applicants are requested to state whether Diploma, Cheese, or Butter Questions are required.

Further particulars and Entry Forms for Students may be obtained from

The SECRETARY,

BRITISH DAIRY FARMERS' ASSOCIATION,

28, Russell Square, London, W.C. 1.

EXAMINATION RESULTS, 1921.

EXAMINATION FOR BUTTERMAKING CERTIFICATE AT THE UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE, CARDIFF; ON THURSDAY AND FRIDAY, APRIL 28TH AND 29TH.

A Certificate of Merit for Proficiency in the Theory and Practice of Buttermaking to Miss Edna F. M. Blake, Miss Frances Burge, Miss Elizabeth A. Jenkins, Miss Edith M. Jones, Miss Eleanor Jones and Miss Nesta L. Watts.

EXAMINATION FOR BUTTERMAKING AND CHEESEMAKING CERTIFICATES AT THE BRITISH DAIRY INSTITUTE, READING; ON TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, JUNE 14TH, 15TH, 16TH AND 17TH.

A Certificate of Merit for Proficiency in the Theory and Practice of Buttermaking to Miss Ethel V. Abrey, Miss Elizabeth M. Cholmeley, Miss Phyllis M. G. Clarke, Miss Myfanwy Davies, Miss Dorothy Dewdney, John K. Douglas, Miss Lucy Duncan, Miss Marjorie E. Fenton, Miss Angele Fournier, Miss Beatrice M. Francis, Charles E. S. Gillett, Miss Dorothy E. Grant, Miss Marjorie W. Hartley, Miss Rosalind L. Heath, John E. Hoddinott, Miss Jennie Jones, Miss Elizabeth Matthews, Miss Elsie McMurtrie, Miss Eteri L. Morris, Anthimos Panaretos, Miss Kathleen M. Pigott, William T. Price, Ronald B. Rawstorne, Miss Helen T. Rhys, Miss Kathleen S. Roper, Miss Ursula Starling, Thomas W. Steer, Miss Lily J. Swinnerton, John D. Williams and Miss Marie L. Zimmerman.

A Certificate of Merit for Proficiency in the Theory and Practice of Cheesemaking to Noel G. Cornejo, Miss Myfanwy Davies, John K. Douglas, Miss Marjorie W. Hartley, Miss Rosalind L. Heath, Miss Jennie Jones, Miss Eteri L. Morris, William T. Price, Miss Helen T. Rhys, Miss Marjorie J. Whitehead and Miss Evelyn Young.

EXAMINATION FOR BUTTERMAKING AND CHEESEMAKING CERTIFICATES AT THE DAIRY DEPARTMENT, COUNTY LABORATORIES, CHELMSFORD; ON MONDAY, TUESDAY AND WEDNESDAY, JULY 18TH, 19TH AND 20TH.

A Certificate of Merit for Proficiency in the Theory and Practice of Buttermaking to Miss Grace Cordell, Wilfred Crocker, Laurence B. Ellison, Maurice Giblett, Miss Amy Law, Miss Jessie G. Macaire, Miss Kitty M. Mann, Daniell C. Mead, Miss Kathleen Trent, Donald Winch and Arthur L. Young.

A Certificate of Merit for Proficiency in the Theory and Practice of Cheesemaking to Maurice Giblett, Miss Amy Law, Miss Kitty M. Mann and Miss Vera Palmer.

EXAMINATION FOR CHEESEMAKING CERTIFICATE AT THE UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE, CARDIFF; ON WEDNESDAY, THURSDAY AND FRIDAY, JULY 27TH, 28TH AND 29TH.

A Certificate of Merit for Proficiency in the Theory and Practice of Cheesemaking to Miss Edna F. M. Blake, Miss Frances Burge, Miss Ethel J. Davies, Miss Elizabeth A. Jenkins, Miss Annie Jones, Miss Eleanor A. Jones and Miss Ethel M. Thomas.

EXAMINATION FOR DIPLOMA, BUTTERMAKING AND CHEESEMAKING
CERTIFICATES AT THE BRITISH DAIRY INSTITUTE, READING;
ON TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, SEPTEMBER
20TH, 21ST, 22ND AND 23RD.

- A Diploma and Silver Medal for Proficiency in the Science and Practice of Dairying
to Percy W. Bailey, Miss Avis Colnett, Miss Myfanwy Davies, Miss Eileen W.
Erskine, Miss Marjorie W. Hartley, Miss Jennie Jones, William T. Price,
Miss Florence E. Skelding, Miss May C. Thomas, Miss Ida Welch and Miss
Phyllis Williams-Gardner.
- A Certificate of Merit for Proficiency in the Theory and Practice of Buttermaking
to Miss Mary I. Bonney, Miss Valerie E. Cheke, Miss Marjorie Dobell, Miss
Beryl Garrard, Miss Edith K. Knight, Miss Dorothy S. Mellish, Miss Wmfred
G. Pole, Miss Frances S. Robson, Miss Evelyn M. Sikes, Miss Moulie S. St.
John-Clarke, Miss Kathleen P. Tufnail and Miss Mary B. Williams.
- A Certificate of Merit for Proficiency in the Theory and Practice of Cheesemaking
to Miss Christine S. Alford, Miss Mary I. Bonney, Miss Phyllis M. G. Clarke,
Miss Dorothy Dewdney, Miss Beatrice M. Francis, Miss Dorothy E. Grant,
John E. Hoddinott, Miss Mabel I. Kemble, Miss Edith K. Knight, Miss
Dorothy S. Mellish, Anthimos Panaretos, Miss Wmfred G. Pole, Miss Frances
S. Robson, Miss Evelyn M. Sikes, Thomas W. Steer, Miss Lily J. Swinnerton
and Miss Mary B. Williams.
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EXAMINATION FOR BUTTERMAKING CERTIFICATE AT
THE UNIVERSITY COLLEGE OF SOUTH WALES AND
MONMOUTHSHIRE, CARDIFF; ON THURSDAY AND
FRIDAY, APRIL 28TH AND 29TH, 1921.

EXAMINER: F. J. LLOYD, F.C.S., F.I.C.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. Why is milk such a valuable food?
2. What is the specific gravity, the percentage of fat, and the percentage of solids other than fat of and in milk of average quality?
3. How does want of cleanliness in the milk affect the making of butter therefrom?
4. If you are selling milk on a round, direct from the farm, what precautions are necessary?
5. What simple methods of testing milk have you had practice in? Enumerate but do not describe them.
6. What are the chief changes in the quantity and quality of milk shown in a year's record?
7. What do you mean by "ripening the cream"?
8. How would butter made from ripened cream generally differ from that made from unripened cream?
9. What objects have you in view when using the butter worker?
10. If you had butter which when made was satisfactory but would not keep, to what cause or causes would you attribute this?

EXAMINATION FOR BUTTERMaking CERTIFICATE AT
THE BRITISH DAIRY INSTITUTE, READING; ON
TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY,
JUNE 14TH, 15TH, 16TH AND 17TH, 1921.

EXAMINERS: R. H. EVANS, B.Sc., AND F. J. LLOYD, F.C.S., F.I.C.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. Explain why milk is often described as a "perfect food."
2. Mention some of the more important causes which tend to reduce the percentage of solids in milk.
3. What is "colostrum," and in what respect does it differ from normal milk?
4. Describe the management of milk from the time it leaves the cow until ready for churning.
5. What is "separator slime," and what are the advantages of having it removed from cream intended for churning?
6. Describe the preparation of cream (a) for sale, (b) for churning.
7. What is a "starter"? and explain how a starter can be prepared.
8. A sample of butter is found to have developed a bad flavour. Mention some of the more important causes to which this may be due.
9. By what methods can the consistency of cream from a separator be regulated? Explain the action of each method.
10. Describe the "working" of the butter obtained in a case of over-churning, so as to ensure the best possible results under the circumstances.

EXAMINATION FOR CHEESEMAKING CERTIFICATE AT
THE BRITISH DAIRY INSTITUTE, READING; ON
TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY,
JUNE 14TH, 15TH, 16TH AND 17TH, 1921.

EXAMINERS: F. J. LLOYD, F.C.S., F.I.C., AND MISS D. G. SAKER.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. What are the causes of a "floating curd"?
2. Describe the method you would adopt in making two gallons of milk into a cheese of the Cheddar variety.
3. How would you vary the amount of acidity, rennet, and salt according to the cheesemaking season from April to October?
4. What is the cause of a soft curd? State the best method of cutting a soft curd.
5. Why do you scald the curd in the making of hard-pressed cheese? Under what conditions would you vary the scald?
6. If your milk that is to be made into cheese shows .28 - .3 per cent. of acidity, how would you proceed to produce cheese of as good quality as possible?
7. Describe the different makes of cheese presses at present on the market and state how the pressure is exerted.
8. How does the ripening of a soft cheese differ from that of a hard-pressed or blue-veined variety?
9. In judging cheese, how would you know if the curd had been vatted (a) too sweet, (b) too sour?
10. What is the difference in treatment in the ripening-room of a soft, blue-veined and hard-pressed cheese?

EXAMINATION FOR BUTTERMAKING CERTIFICATE AT
THE DAIRY DEPARTMENT, COUNTY LABORATORIES,
CHELMSFORD; ON MONDAY, TUESDAY, AND WED-
NESDAY, JULY 18TH, 19TH, AND 20TH, 1921.

EXAMINERS: F. J. LLOYD, F.C.S., F.I.C., and J. G. W. STAFFORD.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. What are the constituents of milk, and what value has each as a food?
2. State the approximate annual yield of milk from four typical breeds and the average fat and total solids in their milk.
3. How should milk intended for retail sale be dealt with from cow to customer?
4. What causes milk to undergo changes (fermentation) when kept?
5. Mention a few of the most usual of these changes and state the cause of each.
6. What is the meaning of "ripening," and why is cream ripened?
7. If, when churning, the cream went to sleep, how would you deal with it? State why.
8. What are the results you wish to obtain by washing the butter grains in the churn?
9. What two conditions produce the best flavour in butter; how may that flavour be diminished, and how spoilt?
10. A friend tells you she cannot make good butter. State, without any details, how and where you would seek for the cause.

EXAMINATION FOR CHEESEMAKING CERTIFICATE AT
THE DAIRY DEPARTMENT, COUNTY LABORATORIES,
CHELMSFORD; ON MONDAY, TUESDAY, AND WED-
NESDAY, JULY 18TH, 19TH, AND 20TH, 1921.

EXAMINERS: F. J. LLOYD, F.C.S., F.I.C., and J. G. W. STAFFORD.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

Eight only to be attempted.

1. Describe in detail the manufacture of an English Cheddar cheese.
2. Sketch a lever cheese press and show by calculation how the pressure is applied.
3. What simple tests do you know for ascertaining the suitability of milk for cheesemaking, and how would you carry out such tests?
4. What is "Annatto," how is it prepared, and how do you account for the increased popularity of coloured cheese during the past two years?
5. Discuss the economic disposal of dairy by-products.
6. When making cheese of the "Blue Veined" type, what points require special attention in order to insure that the finished product develops the characteristic "Blue Mold"?
7. Give the details of manufacture of one of the following varieties of soft cheese:—(a) Coulommier, (b) Pont and Eveque, (c) Camembert, (d) Cambridge or York.
8. What do you consider to be the chief causes of the following faults in cheese:—(a) A sweetish taste, (b) A sharp acid taste, (c) Leaking or weeping when in the ripening room, (d) Heaving. Could these faults be prevented, and if so, how?
9. What is rennet, how is it prepared, and how would you proceed to ascertain the strength of a sample sent for your inspection?

EXAMINATION FOR CHEESEMAKING CERTIFICATE
AT THE UNIVERSITY COLLEGE OF SOUTH WALES
AND MONMOUTHSHIRE, CARDIFF; ON WEDNESDAY,
THURSDAY, AND FRIDAY, JULY 27TH, 28TH, AND 29TH, 1921.

EXAMINER: G. SUTHERLAND THOMSON.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

NOTE.—Candidates need only answer 9 of the following.

QUESTIONS.

1. Give the equipment of a Cheshire cheese dairy and cost of same to treat 500 gallons of milk a day.
2. In the handling of milk from the cow to the cheese vat, at what stages would you exercise the greatest precautions against injury to the reputation of the cheesemaker and the quality of the cheese?
3. What are the advantages of the ordinary metal milk sieve, and what are the serious disadvantages, and how may they be overcome?
4. How would you sample milk from transport churns for fat testing, and what chemical or chemicals would you use to preserve samples up to 30 days?
5. In the purchase of rennet, what tests would you apply to satisfy yourself that the rennet is pure and of a satisfactory strength? Give a simple, practical test for salt.
6. How would you pasteurise milk for Cheddar cheesemaking, and to what temperature would you raise it?
What effect would an average percentage of starter have on hard-pressed cheese if the manufacture were hastened beyond the period favourable to a first grade produce, and if added in excess, what would the result be?

7. Cheesemaking may be divided into three sections, namely, practical, scientific, commercial. Giving to the whole 100 points, what percentage would you allot each section? Give reasons for your answers.
 8. State in detail how you would ascertain the percentage of fat in cheese by the Gerber and Babcock methods. What percentage of fat would be considered satisfactory in green and ripe Cheshire, Cheddar, and Wensleydale Cheese respectively?
 9. In the manufacture of Cheddar, Cheshire, and Wensleydale cheese, give what you consider the maximum and minimum cooking temperatures and their effects on the ripe product.
 10. State clearly how you would judge on commercial lines, a Cheddar, Cheshire, and Stilton cheese.
 11. If a cheese room became contaminated with yeast, how would you sterilise the building effectively?
 12. What are the principal commercial features of a first grade Camembert and a cream cheese?
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EXAMINATION FOR DIPLOMA AT THE BRITISH DAIRY
INSTITUTE, READING ; ON TUESDAY, WEDNESDAY,
THURSDAY, AND FRIDAY, SEPTEMBER 20TH, 21ST, 22ND,
AND 23RD, 1921.

EXAMINERS : R. H. EVANS, B.Sc., MISS D. G. SAKER, and
F. J. LLOYD, F.C.S., F.I.C.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

CHEMISTRY.

1. Enumerate the various important chemical compounds of Phosphoric Acid, and against each state in what substance it is found.
2. What is the meaning of the term "Availability" as regards plant and animal food, and on what conditions does this availability mainly depend ?
3. What is the simplest and quickest method of demonstrating that milk contains the constituents known to be present ?
4. How would you determine the melting point of a fat ?

BACTERIOLOGY.

5. What are the three chief culture media for the bacteria of milk ? State how you would prepare each.
6. Is the action of Lactic acid bacteria mainly a direct chemical change of lactose or an enzyme reaction ? State the grounds for your answer.
7. How would you examine the sediment from milk left in a centrifuge tube ?
8. Explain briefly the respective roles played by bacteria and moulds in the ripening of a soft cheese. (Select one you have studied.)

EXAMINATION FOR DIPLOMA AT THE BRITISH DAIRY INSTITUTE, READING; ON TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY, SEPTEMBER 20TH, 21ST, 22ND, AND 23RD, 1921.

EXAMINERS: R. H. EVANS, B.Sc., MISS D. G. SAKER, and
F. J. LLOYD, F.C.S., F.I.C.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

DAIRYING QUESTIONS.

1. Describe any practical method of finding the "Butter Ratio" of milk. In ascertaining the "Butter Ratio" of the milk of several cows what factors, in addition to the amount of milk yielded and the amount of butter obtained, should be considered in arriving at a comparison?
2. Discuss the handling of milk intended for Buttermaking so as to ensure the best possible results, as regards both quantity and quality of butter obtained.
3. Write a short account of the "natural" colour of butter. What are the causes of (a) pale coloured butter; (b) streaky butter?
4. Give a brief outline of some of the more important causes which affect the flavour of butter.
5. Describe as to a class the treatment of over-acid milk for cheesemaking, and state how sour milk can be utilised commercially.
6. Draw a plan giving the measurements of a cheesemaking dairy capable of dealing with 200 gallons of milk daily, placing the apparatus in position.
7. What books would you keep on a dairy farm where milk is bought, and cheese and butter made and sold?
8. State briefly how you would give an elementary class an idea of Bacteria in their relation to cheesemaking.

EXAMINATION FOR DIPLOMA AT THE BRITISH DAIRY
INSTITUTE, READING; ON TUESDAY, WEDNESDAY,
THURSDAY, AND FRIDAY, SEPTEMBER 20TH, 21ST, 22ND,
AND 23RD, 1921.

EXAMINERS : R. H. EVANS, B.Sc., MISS D. G. SAKER, and
F. J. LLOYD, F.C.S., F.I.C.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

DAIRY FARMING QUESTIONS.

1. If you were engaged by a prospective tenant to inspect and report on the suitability of a holding for Dairy Farming purposes, mention the more important considerations which you would include in your report.
2. Discuss the difficulties which Dairy Farmers are experiencing as a result of the prolonged drought of the spring and early summer months of 1921, and offer suggestions as to how such difficulties may be best overcome.
3. Describe an economical method of rearing calves on a milk selling farm. Give an estimate of the cost of rearing a calf, according to the method you suggest, during the first six months of its life.
4. What are the characteristics of good meadow hay? When should it be cut to ensure the highest feeding value? Briefly describe the process of haymaking.
5. In the case of old pasture land, which has been allowed to get out of condition, describe the steps you would take to renovate the same.
6. Draw a cross-section (with dimensions) of a typical up-to-date cow byre.
7. Write a short account of the advantages and disadvantages of milking machines.
8. Mention some of the more important indications which would lead you to the conclusion that an animal is not healthy.
9. Write an account of any three purchased feeding stuffs generally used for Dairy Cattle. Give their average composition, and draw out a typical winter ration for a milch cow, of which one or more of the feeding stuffs you mention is a component part.

EXAMINATION FOR BUTTERMILKING CERTIFICATE AT THE
BRITISH DAIRY INSTITUTE, READING; ON TUESDAY,
WEDNESDAY, THURSDAY, AND FRIDAY, SEPTEMBER
20TH, 21ST, 22ND, AND 23RD, 1921.

EXAMINERS :

R. H. EVANS, B.Sc. and F. J. LLOYD, F.C.S., F.I.C.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. Explain why the keeping qualities of milk are improved by first heating and then immediately cooling it ?
2. Enumerate the advantages of " Milk Recording."
3. Mention some of the more important causes of taints in milk.
4. A Shorthorn cow yields 600 gallons of milk during the lactation period. Compare the returns you would expect from
 - (a) Selling the milk ;
 - (b) Churning the same.

(Current prices of milk and butter to be taken in arriving at your answer.)
5. What are the essential characteristics of a good churn ? Describe the best method of " preparing " a new churn before it is used for churning purposes.
6. Describe the changes which cream undergoes during the process of churning.
7. Write a short account of any up-to-date milk strainer you are acquainted with.
8. What is the difference in the treatment of butter intended
 - (a) for immediate sale ;
 - (b) for keeping purposes ?
9. What uses do you make of the " Acidity Test " in buttermaking ?
10. Describe any simple method of comparing the " Cream " contents of milk from individual members of a herd of dairy cattle.

EXAMINATION FOR CHEESEMAKING CERTIFICATE AT THE
BRITISH DAIRY INSTITUTE, READING; ON TUESDAY,
WEDNESDAY, THURSDAY, AND FRIDAY, SEPTEMBER
20TH, 21ST, 22ND, AND 23RD, 1921.

EXAMINERS :

MISS DORA G. SAKER, and F. J. LLOYD, F.I.C., F.C.S.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *visa voce*.

QUESTIONS.

1. Given a curd that has been over stirred at renneting, describe the after treatment.
2. Tabulate the difference in the main points of manufacture between a Cheddar of 80-lb. size and 6-lb. size.
3. Describe the manufacture of home-made rennet.
4. What is the most convenient method for draining off the whey in a farmhouse cheesemaking dairy?
5. Does pressed cheese shrink more when cured at a high or low temperature? Give comparative figures.
6. What substitutes do you know of that can be used commercially instead of rennet?
7. When buying milk for cheesemaking what stipulations would you lay down for the producer?
8. Describe the best shaped milk churn on the market, giving the construction and material used, &c. What is the fault of some of those in use?
9. What are the chief causes of loss of fat in cheesemaking?
10. What precautions would you take in the cheese-room to prevent cheese deteriorating during an excessively hot summer?
11. What is the best material for the vessel wherein whey is kept for a farmhouse dairy for the manufacture of whey butter?
12. Where cheesemaking is carried on under the best conditions, how much whey butter would you expect to make per week from a dairy of 40 cows?

The British Dairy Farmers' Association.

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 Cain, Sir William, Wargrave Manor, Wargrave, Berks
 Calthrop, Ian, 160, Friar Gate, Reading
 Calvert, Clifford, Priory Garth, Priesthorpe, Bingley, Yorks
 Campbell, Sir Archibald N., Bart., Garscube, Glasgow
 Candler, G. A., 258, Brixton Hill, London, S.W. 2
 Candy, W. G., Blagrove Farm, Abingdon, Berks

- Cannell, George W., Hardley, near Loddon, Norfolk
 Carlston, James, 7, Avenue Road, Springburn, Glasgow
 Carson, K. W., King's Sutton, Banbury
 Carter, Edwd., East Upton, Ryde, Isle of Wight (L.M.)
 Carter, James, & Co. (represented by Gilbert Beale), 237-8, High Holborn, London W.C. 1
 Cave, George Merton, Bicester, Oxon
 Cecil, Lady Arthur, The Mount, Lymington, Hants
 Chadborn, Dr. C. N., 10, Cambridge Road, Hove, Sussex
 Chalk, Vernon Beecher, Beckenham, Kent
 Chandler, H. H., Botley Mill Farm, Henley-in-Arden, Warwickshire
 Chant, C., Manor Farm, Todber, Sturminster Newton, Dorset
 Chapman, Frederick, Park House Farm, Aberford, near Leeds
 Cherry, Dr. C. Cummins, Australia House, Strand, London, W.C.
 Chevallier, John B., Aspall Hall, Debenham, Suffolk
 Chick, John H., Wynford Eagle, Dorchester, Dorset
 Chick, W. D., Compton Valence, Frampton, Dorchester, Dorset
 Chick, W. J., Stratton, Dorchester, Dorset
 Chillingworth, A. F., & Sons (represented by A. F. Chillingworth), Reddown Farm, Highworth, Wilts
 Chiswick Soap and Polish Co. (represented by Chas. Mason), Chiswick, London, W.4
 Chivers, John, J.P., Wychfield, Cambridge
 Chivers & Sons, Ltd. (represented by John Stanley Chivers), Histon, Cambridge
 Clare, A. J., Market Place, Wells, Somerset
 Clark, William, Himalayan Dairy, Ghoom D. H. Ry., India
 Clarke, Col. Stephenson R., C.B., J.P., Borde Hill, Cuckfield, Sussex
 Clarke, E. H., Cossington Grange, Leicester
 Clarke, E. W., Chilborough House, Aylesbury, Bucks
 Clarke, P. R., Boltons Park Farm, Little Heath, Potters Bar
 Clay, Col. H. H. Spender, C.M.G., M.P., Ford Manor, Lingfield, Surrey
 Clement, Sir Thomas, 27, South Albion Street, Glasgow
 Coates, Charles M., Lower Farm, Halton, near Tring
 Coats, Miss E. D., Brattles Grange, Brencley, Kent
 Cocks, R. Ernest, J.P., X.L. Dairy, Saltash Street, Plymouth
 Cole, Henry F., Tilly Manor Farm, West Harptree, Bristol
 Collet, Sir Mark E., St. Clere, Kemsing, Sevenoaks
 Collins, William, Crafton, Leighton Buzzard, Beds
 Collis, Miss A. H., Church Farm, Panteg, Pontypool Road, Mon.
 Compton, Alfred H., 46, Russell Road, Kensington, London, W. 14 (L.M.)
 Comyns-Lewer, Mrs. E., 6, Oakwood Avenue, Beckenham, Kent (L.M.)
 Cook, F. E. Arthur (representing F. R. Cook & Co., Ltd.), Victoria Roller Mills, Stowmarket, Suffolk
 Cook, Miss E. G., Heath House, Tetsworth, Oxon
 Cook, William, & Sons (represented by A. J. Thompson), Orpington House, St. Mary Cray, Kent
 Cook, William H., The Model Poultry Farm, Orpington, Kent
 Cooke, Miss W. M., Eversley Park, Sherburn-in-Elmet, Yorks.
 Cooper, Major R. W., Eling House, Hermitage, Berks.
 Cooper, Sir George A., Bart., Hursley Park, Winchester (Agent, T. W. Ashton, Estate Office, Hursley Park, Winchester, Hants)
 Coote, Col. Charles H. Eyre, Highgate House, Creaton, Northampton
 Corner, Dr. Harry, Brook House, Southgate, N. 14
 Cornish, Mrs. C. J., Steyne, Bembridge, Isle of Wight
 Corrie, Harold, Heath House Farm, Lowfield Heath, Surrey
 Cory, Percy W., Manor Farm, Notgrove, near Bourton-on-the-Water, Glos
 Coryton, Miss Mary L., Pentillie Castle, St. Mellion, Cornwall
 Cossar, John T., 467, St. George's Road, Glasgow
 Coster, J., & Sons (represented by J. Coster), Gouda, Holland
 Cotterell, R. L., Ruscombe, Twyford, Berks
 County Live Stock Insurance Association, Ltd. (represented by John Hetherton), The County Stud Farm, Sandburn, Stockton-on-the-Forest, York
 Cowell, Miss Mary A., Callows Hill, Ledbury, Herefordshire
 Cowley, William A., Ovingdean Grange, nr. Brighton, Sussex
 Cox & Sons (represented by A. Cockx), Northwold Buildings, Northwold Road, Stoke Newington, London, N. 16.

Cox, Harry T., Bishops Stortford Dairy Farms, Bishops Stortford, Herts
 Cox, James, jun., Manor Road Farm Dairy, Barnet, Herts
 Cox, Miss E. Lillian, Chewton Field Farm, Chewton Mendip, Bath, Somerset
 Cox, Miss L. M., 2, East Grove, Cardiff, Glam
 Cox, William J., The Cardiff Milk Supply, City Road, Cardiff, Glam
 Coxall, Samuel J., Shelford Hall Farm, Hinxton, Cambs
 Crabtree, James, 25-39, Price Street, Birkenhead, Cheshire (L.M.)
 Crawford, Hugh W. B., Chapmanton, Castle Douglas
 Crawford, John, Lawness Farm, Billericay, Essex
 Crawford, Lady Gertrude, Coxhill, Lymington, Hants (L.M.)
 Crawford, Miss A. W., Harper Adams Agricultural College, Newport, Salop
 Crewe, Marquis of, P.C., D.C.L., Crewe House, Curzon Street, W. (Communications to Prof. W. McCracken, Englesea House, Crewe)
 Crompton, Chas. W., Hall Green, near Wakefield, Yorks
 Crompton, James R., Greenhayes, Banstead, Surrey
 Cross, George, British Empire Hotel, De Vere Gardens, Kensington, London, W.8
 Cross, J. L., Catthorpe, Rugby
 Crow, Robert, Jealots Hill Farm, Bracknell, Berks
 Crowe, John, Woodhouse, Aldford, Chester
 Crumpler, Jesse, Longlands, North Coker, Yeovil
 Cunningham, Mrs., 1156, Argyle Street, Glasgow
 Cupiss, Francis, Ltd. (represented by Walter Clarke), The Wilderness, Diss, Norfolk
 Currie, Laurence, Minley Manor, Farnborough, Hants
 Curtis, Mrs. C. J., Ravenslea, West Hill Avenue, Epsom
 Curtis, T. L. (Curtis Bros.), Valley Road, Streatham, S.W. 16

DAIRY OUTFIT Co., Ltd. (represented by Sir Sidney J. Pocock, J.P.), 251, Pentonville Road, King's Cross, London, N. 1.
 Dale, William, Mill Hill Farm, Acklam, Middlesbrough, Yorks
 Dalrymple, Miss Mary, Elliston, St. Boswells
 Dalrymple-Hamilton, Col. North, Bargany, Girvan, Ayrshire (L.M.)
 Dare, Francis E., Ilalstock, Yeovil, Somerset
 Darrell, Miss Mary, Ebberston, Snainton, S.O., Yorkshire
 Dartmouth, Earl of, P.C., K.C.B., Patshull, Wolverhampton
 Davies, Edward, Plas Power Home Farm, Wrexham
 Davies, General H. F., Elmley Castle, Pershore (L.M.)
 Davies, Ben, 28, King Street, London, W. 1
 Davis, Colonel, Salt Hill House, Slough, Bucks
 Davis, Lew, 75, George Street, Oxford
 Davy, A. Cedric, Paternoster Row, Sheffield, Yorks
 Dawson, George, Dawson Bros., Leeds, Yorks
 Dawson, Miss E. M., 1, College Hill, Shrewsbury
 Day, Chas. F. (representing Day & Day), 237-239, Lower Clapton Road, Clapton, London, E. 5
 Day, Charles T., 237-239, Lower Clapton Road, Clapton, London, E. 5
 Day, Major E. C., Becketts, Chiddingstone, Kent
 Day, Son, & Hewitt (represented by G. S. Hewitt), 22, Dorset Street, London, W. 1 (L.M.)
 Dean F. W., St. Germain's Farm, St. Albans, Herts
 Deardin, Miss D. V., British Dairy Institute, Reading
 de Bathe, Lieut.-Col. Max, Hartley Court, Reading, Berks
 Debenham, Miss Alice (representing Messrs. E. R. & A. Debenham), Bladen Dairy Farms, Briants Puddle, Dorchester
 De la Warr, Countess, Westside House Wimbledon Common, London, S.W. 19 (Agent: J. Quick, Camp Farm, Wimbledon Common, S.W. 19)
 Dennis, Mrs. C., ril, Oakley Hall, Market Drayton, Salop
 Derby, Earl of, K.G., Knowsley, Prescott, Lancs (all communications to Robert Galbraith, The Home Farms, Knowsley, Prescott)
 Desborough, Lord, K.C.V.O., Taplow Court, Taplow, Bucks
 Deverell, Edgar T., Dormers Leys, Tetworth, Oxon
 Dewar, Lord, The Homerstall, East Grinstead, Sussex
 Dewhurst, Harry, M.P., Dale Ford, Sandiway, Cheshire
 Dickie, Robert, Knockenjig, Sahnghar, Dunfriesshire
 Dickinson, B.O., Southbury, Golf Links Road, Burnham-on-Sea, Somerset

Dickson & Robinson (represented by F. Robinson), Cathedral Street, Manchester, Lancs

Dickson, Miss K., Sutton Place Cottage, Abinger, Surrey

Dimmock, J. B., Shotford Hall, Harleston, Norfolk

Dixon, Joseph, Spring Grove, near Sheffield, Yorks

Dixon, Ralph, Tardebigge, Bromsgrove, Worcs

Doran, Capt. W. A., Harristoun House, Ardee, Co. Louth

Douglas, John, Douglas Wharf, Putney, London, S.W. 15

Douglas, L. M., 29, West Saville Terrace, Newington, Edinburgh

Douglas, Thomas, Douglas Wharf, Putney, London, S.W. 15

Dover, J. G., Brightwell Hill, Wallingford, Berks (L.M.)

Drake, Kendall & Co. Ltd. (represented by H. F. Drake) 29, Seymour Place, London, W. 1

Drewe, Capt. A. S., 9, Redlands Road, Reading

Drummond, Prof. R. J., Dairy School, Kilmarnock

Drysdale, John, Scottish Agricultural Organisation Society, 5, St. Andrew Square, Edinburgh

Duchess of Devonshire Dairy Co., Ltd. (represented by T. R. Mills), Tiverton Junction, Cullompton, Devon

Duckworth, Capt. E., Hooton Farm, Hooton, Birkenhead

Dudgeon, Major C. Randolph, Cargen-Holm, Dumfries

Dunmow Flitch Bacon Co., Ltd. (represented by Wm. Hasler), Dunmow, Essex

Dunn, Henry, 22, St. James' Road, Barnsbury, London, N. 7 (L.M.)

Du Val, John, La Caroline, St. Peter's, Jersey

Dyer & Son (represented by T. Dyer), Illston, Billesdon, Leicestershire

EASTON, Edward G., 43, Gt. Tower Street, London, E.C. 3

Eaton, George T., Thurston Hall, Framfield, Sussex

Edwards, F. C., Granby House, Granby Street, Hampstead Road, London, N.W.

Edwards, Geoffrey, 41, Lovelace Gardens, Sulbiton, Surrey

Edwards, Henry, Hofland Road, West Kensington, London, W. 14

Edwards, J. W., Fox Hall, Oswestry, Salop

Edwards, Miss Katie, Ty-draw Farm, Nelson, near Cardiff

Edwards, Sidney, Blackbirds' Nest, Bassaleg, Newport. Mon.

Edwards, W. H., Brookfield, Pinhoe, near Exeter

Ellison, R., Colonial House, Tooley Street, London, S.E. 1

Elmhurst Farming and Trading Co., Ltd. (represented by H. St. George Voules), Elmhurst Farm, Slinfold, Sussex (L.M.)

Elveden, Viscount, C.B., C.M.G., M.P., 11, St. James's Square, London, S.W. 1

Elwes, Lieut.-Col. W., Oakdale, Ockley, Surrey

Emberton, William, Home Farm, Doddington, Nantwich, Cheshire

Emerton, Frank, 78, Grange Drive, Winchmore Hill, N. 21

Emerton, H. J., The Chase, Winchmore Hill, N. 21

Enock, Arthur Guy, Thane Works, Fountayne Road, Broad Lane, Tottenham, N. 15

Entwistle, Miss E., Cefn-y-Coed, Upper Colwyn Bay, N. Wales

Errington, Roger, Victoria Mills, Sunderland

Evans, J., Harrington House, Cheltenham

Evans, Richard H., Madryn Castle Farm School, Pwllheli, Carnarvonshire

Evans, Sir Walter H., Bart., Wightwick Hall, near Wolverhampton

Evelyn, Mrs. J. H. C., Wotton House, near Dorking, Surrey (All communications to Estate Office, Wotton, Dorking)

Evens, John, Burton, Lincoln

Ewing, Hugh, Burtley Farm, Bramley, Guildford, Surrey

Ewing, M., Ashlands House, Crewkerne, Somerset

Express Dairy Company, Limited (represented by R. H. Hewson), Tavistock Place, London, W.C. 1

Ezra, Capt. E., Lock, Partridge Green, Sussex (Agent : F. P. Musgrave)

FAIRBANKS, Reginald A., Pearcelands, West Hoathly, Sussex

Fairweather, E. C., Avisford Park, Arundel, Sussex

Farmer, John T. H., Devonia, Cippenham, Slough

Farmer, Samuel Wm., Little Bedwyn, Wilts

Farmers' and Cleveland Dairies Company, Limited (represented by J. T. Horner) 12 and 13, East Street, Gifford Street, Caledonian Road, London, N. 1

Farwig, H. A., Mapleton Dairy Company, Mapleton Farm, Edenbridge, Kent

- Fawkes, Algernon (L.M.)
 Fawkes, F. H., Farnley Hall, Otley, Yorks
 Feilding, Lt.-Col. Viscount, C M.G., D.S.O., Street Ashton House, Rugby
 Fertiliser and Feeding Stuffs Journal (represented by J. N. Firth), 38, Shoe Lane, London, E.C. 4
 Fewings, J. H., Ferndale, Bream, Glos
 Fewson, Mrs. A., 17, Ripplevale Grove, Barnsbury, London, N. 1
 Fielding, A. Ross, Park Lodge, Stone, Staffs
 Finch, Bernard, Flitwick, Beds
 Finlayson, J. J., Copley House Farm, Meltham, Yorks
 Firth, T., Hall Farm, Darley Dale, near Matlock
 Fisher, C. B., Clipston House, Market Harborough
 Fisher, Fred T., Pinkneys Court, Pinkneys Green, Maidenhead (L.M.)
 Fisher, J. T., Eastfield, Peterborough
 Fison, Joseph, & Co. Ltd. (represented by Harry M. Ennals), Ipswich
 Fitzherbert-Brockholes, W., J.P., D.L., C.B.E., Claughton Hall, Garstang
 Fitzroy, Capt. the Hon. E. A., M.P., Fox Hill, West Haddon, Rugby
 Fletcher, Miss M. J., 28, Park Road, Chelmsford
 Folkestone, Viscount, Longford Castle, Salisbury. (Agent: R. E. Macan)
 Follows, A. J., Metchley Park, Edgbaston, Birmingham, Warwickshire
 Forbes, Lady Angela, Yew Tree House, Westfield, Sussex
 Forester, Capt. F., M.F.H., Saxelbye Park, Melton Mowbray
 Formby, Wm., The Cedars, Stratton St. Michael, Long Stratton, Norfolk
 Forster, Miss Jane, Dairy Institute, Worleston, Nantwich, Cheshire
 Fortescue, Earl, Castle Hill, South Molton, North Devon (L.M.)
 Forteviot, Lord, Dupplin Castle, Perthshire (L.M.)
 Fortnam, Joseph T., Rudge Manor, Ashley, Market Drayton
 Fortune, Robert, Newhouse, Cranleigh, Surrey
 Foster, Thomas, 27, Church Street, Ormskirk, Lancs.
 Four Oaks Spraying Machine Co. (represented by W. C. G. Ludford), Four Oaks, Sutton Coldfield, Birmingham, Warwickshire
 Fowler and De la Perrelle (represented by T. W. Bridger), Porters Lane, near Royal Pier, Southampton, Hants
 Fowler, W. Herbert, J.P., Chussex, Walton-on-the-Hill, Epsom (L.M.)
 Francis, C. G., Strawberry Poultry Farm, Edgbaston Park Road, Birmingham
 Freckelton, F. S., Narborough Wood, Enderby, Leicester
 Freeth & Pocock (represented by Sir Sidney J. Pocock, J.P.), 50, Hill Road, Wimbledon, S.W. 16
 Freeth, Capt. Edwin, 81, West Hill, Putney, London, S.W. 15
 Freeth, H. F., Cheyleswood, Langley Park, Mill Hill, London, N.W. 7
 Fremlin, Walter T., Milgate Park, Maidstone, Kent
 French, W. T., & Son (represented by A. E. French), St. Mary Street, Ladywood, Birmingham
 Frowd, Herbert H., 10, Oban Road, Bournemouth
 Fuller, Dr. L. O., Three Counties Mental Hospital, Arlesey, Beds
 Fuller, Major Robert F., J.P., Great Chalfield, Melksham, Wilts (L.M.)
 Fullwood & Bland (represented by Charles Bland), 31, Bevenden Street, Hoxton, N. 1
 GAMAGE, A. W., Ltd. (represented by John S. Packer), Horticultural Dept., Holborn, E.C. 1
 Gardner, Mrs. Chas. H., Rectory Farm, Pulloxhill, Amptill, Beds
 Garne, W. T., Aldsworth, near Northleach, Glos (L.M.)
 Garrad, George H., Wye College, Kent
 Garrard, F. R., The Hall, Framlingham, Suffolk (L.M.)
 Gartons, Ltd. (represented by George P. Miln), Warrington
 Gascoigne Co., Ltd. (represented by G. H. Gascoigne), 3, Central Buildings, Westminster, London, S.W. 1
 Gates, B. F. J., Wing Park, Wing, Bucks
 Gatty, Albert A., The Hall, Brimfield, S.O., Herefordshire
 Gibbons, Henry H., Church Farm, Clutton, Bristol
 Gibson, A., Yarrow, Haywards Heath, Sussex
 Gibson, Miss Peggie, Dairy School, Kilmarnock
 Gibson, Mrs. M., Cofton Farm, Starcross, near Exeter
 Gibson, William, C.B.E., Walton Warren, near Burton-on-Trent
 Gilbert, C. E., Oaklands, Mickleover, near Derby

- Gilbert, F. W., The Lawn, Chellaston, Derby
 Giles, Henry, Stockers Farm, Rickmansworth, Herts
 Gilmour, W. P., Balmangan, Kirkcudbright
 Gisborne, Col. Lionel, C.M.G., Lingen Hall, Brampton Bryan, Herefordshire (L.M.)
 Gittins, William H., The Hall Farm, Ruyton-of-the-Eleven Towns, Shropshire
 Gloucester Incubator Company (represented by E. L. Godfrey), Woodchester Mills, near Stroud, Glos
 Glover, Wilfred, The Retreat, Willoughby, Waterleys, near Leicester
 Goddard, E.P., South Eastern Agricultural College, Wye, Kent
 Godfrey, E. L., Woodchester Mills, near Stroud, Glos
 Godfrey, J. N., Sharpenhoe, near Ampthill, Beds
 Godfrey, John, & Co., Ltd. (Represented by C. B. Carter), Railway Gates, Stamford
 Godman, Lieut.-Col. A. F., East House, Great Smeaton, Northallerton, Yorks
 Golding, Capt. John, D.S.O., Cutbush Lane, Shinfield, near Reading
 Golding, W. J., Bowens, Penshurst, Kent
 Golland, Tom J., The Mill Farm, Appleby, Doncaster, Yorks
 Goode, C. N., The Haydens, Bletsoe, Bedford
 Goodwin, Dr. William, M.Sc., Ph.D., Midland Agricultural and Dairy College, Kingston, Derby
 Goodwin, E., Yew Tree House, Burston, Stafford
 Goodwin, Thomas C., Leighton Grange, Crewe
 Gordon, Edward, Dunjop, Castle Douglas
 Gordon, Miss M. E., 51a, Ashby Road, Loughborough
 Gosling, Miss E. F., Chobham Park Farm, Chobham, Surrey
 Gosney, G. F., 234, Strand, London W.C. 2
 Gostling & Co. (represented by A. H. Jeffery), Diss, Norfolk
 Gough, Percival J., Whitefield Poultry Farm, Somerford, Christchurch
 Grahham, A., 139, Englefield Road, Essex Road, London, N. 1
 Graham, George, Priory Farm, Wrabness, Manningtree
 Graham, Marchioness of, Easton Park, Wickham Market, Suffolk (Agent, H. II. Lear, The Farms Office, Easton Park, Wickham Market)
 Graham, Wm., Eden Grove, Kirkbythore, Penrith, Cumberland (L.M.)
 Graham, Wm., Ochiltree, Fairlee, Ayrshire
 Grant, Reginald, Pen-y-Bedd, Pembrey, Carmarthen
 Grant, W. J., Pentonville, Newport, Mon
 Gray, George E., Fairstead, Great Warley Essex (L.M.)
 Gray, Robert, Estate Office, Sherborne Park, Northleach, S.O., Glos
 Grayson, Thomas, 16 and 17, Queen Street, Derby
 Great Western and Metropolitan Dairies, Ltd. (represented by Wm. Price), 34, Palace Court, Bayswater, London, W. 2
 Green, Wm. Henry, Brookfield, Bramhall, Cheshire
 Greenall, Sir Gilbert, Bart., C.V.O., Walton Hall, Warrington, Lancs (Agent, W. Bainbridge, Walton, Estate Office, near Warrington)
 Greenway, Capt. C. K., Stanbridge Earls, Romsey, Hants
 Greenwood, Lt.-Col. Charles S., M.B.E., J.P., Swarcliffe, Birstwith, Harrogate
 Grefell, General H., Pickwell Manor, Oakham
 Griffin, J. Whitehouse, Towersey Manor, Thame, Oxon (L.M.)
 Grimsdale & Sons, Ltd. (represented by D. Herbert Grimsdale), 54, Great Tower Street, London, E.C. 3
 Grimsdell, Henry John, 36, Snow Hill, London, E.C. 1
 Grove, John, Carharthen, Probus, Cornwall
 Gurnell, Frank, West End Farm, Ashby, Scunthorpe, Lincs

- HALE, Horace, Findon, Worthing, Sussex
 Hall, Henry H., Rye Hills, Marske-by-the-Sea, Yorks
 Hall, Miss A., St. David's Hall, University College, Reading.
 Hall, Miss E. M. G., Craycombe House, Pershore, Worcester
 Hall, Richard, Torrisholme Hall, Morecambe
 Hall, R. Charles, The Wend Farm, Coulsdon, Surrey
 Hambleton, Viscount, Greenlands, Henley-on-Thames. (Agent, W. F. Holt Beever, Estate Offices, Yewden, Henley)
 Hambro, Sir E. A., K.C.V.O., Hayes Place, Hayes, Kent (L.M.)
 Hamilton, Miss M. H., Coddington Court, Ledbury, Herefordshire.
 Hamilton and Brandon, The Duchess of, Hamilton Palace, Lanarkshire.

- Hamlyn & Co., Ltd. (represented by G. W. French), 45, Coplestone Road, Peckham, London, S.E. 15
- Hampshire, Frank H., Ash Villa, Upperthong, Holmfirth, near Huddersfield
- Hampshire H., Cefn Tilla Farm, near Usk, Mon
- Hand, J. Denyer, *The Dairy Offices*, 21, Farringdon Avenue London, E.C. 4
- Hankey, Colonel Walter A. (L.M.)
- Hannent, F. Charles, Saltwood House, Hanworth Road, Hounslow
- Hansen, H., Elmswell, Bury St. Edmunds
- Hansen's Laboratory, Ltd. (represented by J. C. Moller), 77, St. Thomas Street, London, S.E. 1
- Hardcastle, Major H. M., Bradshaw Hall, Bolton-le-Moors, Lancs
- Hardie, W., Manor Farm Dairy, 50, St. Leonards Road, Bexhill-on-Sea, Sussex
- Harding, G. P., J.P., Roagestone Grange, Chepstow, Mon.
- Hardman, N., The Elms, Barton, Preston, Lancs.
- Hare, Lady Kathleen, Brokenhurst Park, Brockenhurst, Hants
- Harewood, Earl of, Harewood House, Leeds, Yorks
- Harries, T. Ll., Pilrboth, Llanstephen Road, Carmarthen
- Harris, Arthur C., Donnington Manor, Chichester
- Harris-Stephenson, Edward A., Burton House, near Stafford
- Harris, Stanley, Aspley Guise, S.O., Bedford (L.M.)
- Harrison, R. C. H., Shiplake Court, Henley-on-Thames, Oxon
- Harrison, Thomas D., Albion Iron Works, Leigh, Lancs
- Hassell, A. W., Tudor Farm, East Harptree, Bristol
- Hastings, Lord, Melton Constable Park, Norfolk
- Hatfield, E., Aynscomb Mart, Orpington, Kent
- Hawes, Thomas, Bent Hill Farm, near Buckingham
- Hawkins, A. W. Bailey, Stagenhoe Park, Welwyn, Herts
- Hay, Percy T., 3, Brookfield Park, Highgate Road, London, N.W. 5
- Hayes, Arthur John Asa, 18b, Salisbury Street, New North Road, London, N. 1
- Hayes & Son (represented by John E. Hayes), Stamford, Lincs
- Hayward, Colonel J. F. Curtis, Quedgeley, Gloucester (L.M.)
- Hearnshaw, R. Fletcher, Foxhill, Burton Joyce, Nottingham (L.M.)
- Heath, Mrs. Enoch, The Elms Farm, Raglan, Mon.
- Heaton, Stuart, Poplar Farm, Iken, Tunstall, Suffolk
- Heavens, William, Postern Gate Farm, South Godstone, Surrey
- Heaver, John W. T., Ratham House, Chichester, Sussex
- Hebditch, Harry, Poultry Farmer and Appliance Maker, Martock, Somerset
- Henderson, Admiral W., Littlegrove Farm, Ropley, Hants
- Henderson, Lt.-Col. the Hon. H. G., Buscot Park, Faringdon, Berks (Agent, Walter Crosland, Estate Office)
- Henderson, Miss Marjorie, The Riding, Hexham Northumberland
- Henry, Colonel Frank, J.P., Elmestree, Tetbury, Glos
- Hepworth, Miss N. M., Red Court, Ealing, London, W. 5.
- Herbert, F. F., The Graig, Penalt, Mon
- Heseltine, John E. N., Hawking Down, Hindon, Salisbury
- Hewitt, F. Vernon, Oaklands, Quorn, Leicestershire
- Hewthorn & Co., Ltd., (represented by Charles Simpson), 70, Finsbury Pavement, London, E.C. 2
- Heywood, N. A. J.P., Glevering Park, Wickham Market, Suffolk (J. M.)
- Heywood-Lonsdale, Lt.-Col. H. H., Shavington, Market Drayton, Salop
- Hicking, Sir William N., Bart., Brackenhurst Hall, Southwell, Notts.
- Higgins, W., Kilburn Lane Farm, Kensal Green, London, N.W.
- Higgs, James, 2, Canterbury Road, Brixton, S.W. 9
- Hillier's Bacon Curing Co., Ltd. (represented by John Abbott), Newmarket, near Stroud, Gloucester
- Hlinks, Henry Thorp, Keyham, near Leicester
- Hindlip, Lord, Hindlip Hall, Worcester (Agent, Capt. W. Robson, Estate Office, Hindlip)
- Hinton, Robert J., Heytesbury, Wilts.
- Hitchen, Thomas L., Highfields, Baddiley, Nantwich, Cheshire
- Hobbs, R. W., & Sons (represented by R. W. Hobbs), Kelmscott, Lechlade, Glos
- Hobson, J. T., & Co. (represented by Mr. Eccles), New Wharf, St. Mary's, Bedford
- Hobson, W. H., Woodhey Hall, Nantwich
- Hodge, Mrs. Arthur B., The Redings, Totteridge, London, N. 21
- Holborow, J. P., Northfield Farm, Charlton Kings, Glos

- Hole, Sidney, Yew Tree House, Albourne, Hassocks, Sussex
Hollington, Alfred Jordan, Forty Hill, Enfield, Middlesex
Holm, H. C., The Grange, Caulton Curlew, Leicester
Holman, H., J.P., Holcombe Down, Teignmouth, Devon
Holmes, W. F., The Thatched House, Hampton Wick, Middlesex
Holmes-Hunt, W., Crawley Down, Sussex
Holt-Thomas, G., North Dean House, Hughenden, Bucks
Hooker, John Henry, The Firs, Buckingham
Hope, H. E., 22, Billiter Street, London, E.C. 3
Hopwood, Alfred A., Dairy House, Handforth, Cheshire
Hornby, E. G. S., J.P., Dalton Hall, Burton, Westmorland
Hornby & Clarke (represented by H. E. Hornby), 12, The Quadrant, Richmond, Surrey
Horne, W. Edgar, M.P., Hall Place, Shackleford, Godalming, Surrey
Hosegood, Obed., Dillington Farm, Ilminster, Somerset
Hoskin, Miss Dorothy U., Carluther Baiton, Liskeard, Cornwall
Hough, S. G., Springhouse Park, Theydon Bois, Essex
House, C. A., Poultry Press, Ltd., 54 & 55, Fetter Lane, London, E.C. 4.
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Howard, Robert, Pound Farm, Esher, Surrey
Howell, Mrs. A. Gwynne, Heathfield, Letterston, Pem
Howkins, Rex, Clifton Reynes, Newport Pagnell, Bucks
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Hughes, Herbert E., The Bungalow, Broxbourne, Herts
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 Lambert, Thomas, Bourne Mill, Hadlow, Kent
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 Morley, Thomas, Gallant's Farm, Whetstone, Middlesex
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 Morris, Charles, J.P., Highfield Hall, St. Albans
 Morrison, Major J. A., D.S.O., Basildon Park, Reading
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 Proctor, James S., Ardenlee, Brooklands, Cheshire

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 Robinson, Capt. J. B. W., Oaklands, Gaddesby, Leicester
 Robinson, Joseph C., Iford, Lewes, Sussex
 Robinson, Theodore R., Brunswick Lodge, Dunton Green, Kent
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 Robson William, Grange House, Shap, Westmorland
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ABBREVIATIONS— (H.M.) Honorary Member. (L.M.) Life Member.

INDEX TO ADVERTISEMENTS.

	PAGE
Animal Medicines, Sheep Dips, &c.	
CATALINE COMPANY 	Inside Back Cover

Announcements, General.	
AGRICULTURAL GAZETTE	299
ELKINGTON & Co., LTD.	306
GOVERNMENT OF THE UNION OF SOUTH AFRICA	307
MILLS' HOTEL 	305

Cattle.	
EZRA, E. (Pedigree Dairy Shorthorns) 	293
WILLS, CAPTAIN ARNOLD S. (Pedigree Dairy Shorthorns) ..	300

Dairy Machinery, Utensils, &c.	
DAIRY SUPPLY Co., LTD.	1
PETTERS LIMITED	302
STANSELL & GREGORY, LTD. 	2

Insurance.	
IMPERIAL LIVE STOCK INSURANCE Co., LTD. ...	Outside Back Cover

Milk, Cream, Rennet, &c.	
CURTIS BROS. & DUMBRILL, LTD. 	301
FULLWOOD & BLAND 	304
STAPLETON & SONS, LTD. 	301
UNITED DAIRIES (WOLESALE), LTD. 	305
WELFORD & SONS (DAIRIES), LTD. 	305

Veterinary Appliances.	
ARNOLD & SONS 	Inside Front Cover

JOURNAL
OF THE
British Dairy Farmers'
Association.

Vol. XXXV.

1923.

PRICE 3s. (*Free to Members.*)

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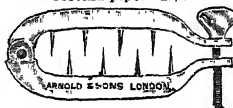
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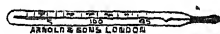
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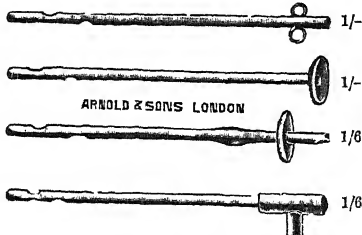
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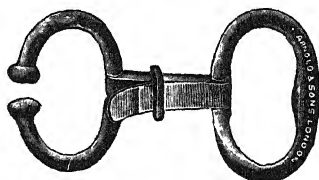
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CONTENTS.

VOLUME XXXV.

1923.

MEMOIR OF THE LATE F. J. LLOYD, F.I.C., F.C.S.

ORIGINAL ARTICLES AND REPORTS.

	PAGE
1. DAIRY FARMING ON ARABLE LAND... ..	10
By JESSE SKINNER.	
2. COWS' MILK FOR INFANT FEEDING... ..	19
By Miss ELSIE G. COOK, N.D.D.	
3. CREAM-RISING POWER IN THE MILK FROM DIFFERENT BREEDS	25
By J. DINGLE WILLIAMS, N.D.D.	
4. GUERNSEY CATTLE	34
By Mrs. JERVOISE.	
5. DAIRY FARMING IN THE NETHERLANDS	45
By JAMES H. MOORHOUSE.	
6. THE HOME COUNTIES DAIRY CONFERENCE	52
By W. E. MANCHESTER.	
7. WHAT IS A PROFITABLE MILK YIELD?	67
By JAMES MACKINTOSH, N.D.A., N.D.D.	
8. ANNUAL REPORT OF THE CONSULTING CHEMIST	81
By F. J. LLOYD, F.I.C., F.C.S.	

THE DAIRY SHOW OF 1922.

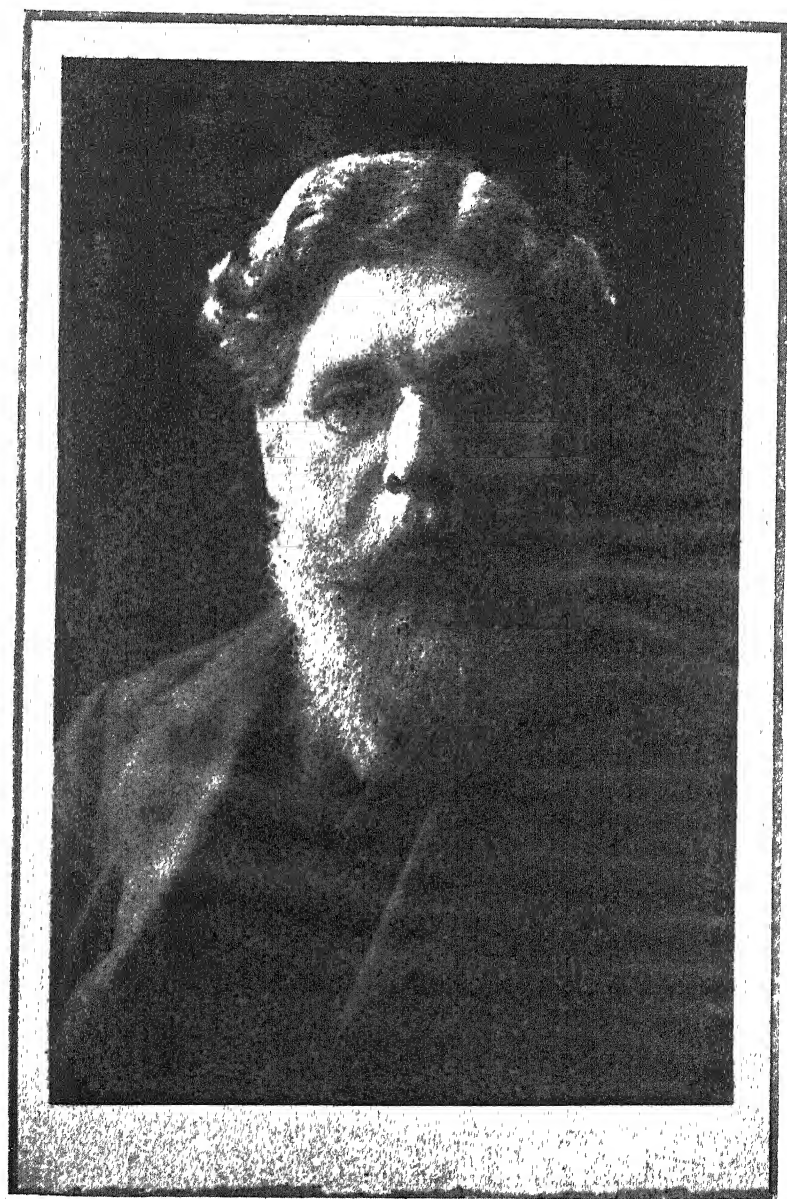
	PAGE
GENERAL REPORT. By S. R. WHITLEY... ..	82
MILKING TRIALS OF COWS AND HEIFERS. By T. J. DRAKELEY, Ph.D., M.Sc., F.I.C., F.C.S., M.I.M.E. ...	99
MILKING TRIALS OF GOATS. By T. W. PALMER	192
BUTTER TESTS. By H. R. EVANS, B.Sc.	207
NEW INVENTIONS. By WILLIAM BURKITT, B.Sc., F.H.A.S., N.D.D.	249
POULTRY SECTION. By JOSEPH PETTIPHER	261
PIGEON SECTION. By W. S. BROCKLEHURST	268
AWARDS OF PRIZES	276

OFFICIAL.

OBJECTS OF THE ASSOCIATION AND PRIVILEGES OF MEMBERS...	292
THE BRITISH DAIRY INSTITUTE	298
THE 47TH HALF-YEARLY REPORT OF THE COUNCIL	299
THE ANNUAL REPORT OF THE COUNCIL... ..	304
THE MEDAL SCHEME	309
PRIZE ESSAY	312
THE PRODUCTION OF CLEAN MILK	313
EXAMINATIONS FOR DIPLOMA AND CERTIFICATES IN DAIRYING, &c.	314
RESULTS OF EXAMINATIONS IN 1922	322
EXAMINATION QUESTIONS	324
MEMBERS OF COUNCIL AND COMMITTEES	338
LIST OF MEMBERS AND AFFILIATED SOCIETIES... ..	341

INDEX TO ADVERTISERS	365

The Association does not guarantee the accuracy of the statements contained in the various contributions to this Journal, nor does it necessarily, as a body, endorse the conclusions and views of the contributors; the authors themselves are solely responsible,



FREDERICK JAMES LLOYD, F.I.C., F.C.S.

It is with feelings of the greatest regret and sorrow that one tries to write the obituary notice of a friend, more especially when it is difficult to do sufficient justice to the same. Mr. Lloyd's last attendance at a Council Meeting of the British Dairy Farmers' Association was on the 31st of January, when he took his usual active part in the proceedings, but complained of an attack of asthma, and was dead a week after.

Frederick James Lloyd was of Welsh origin and was born in Swansea, just seventy years ago. Early in life he took up a scientific career, and on the advice of his cousin, the late Mr. H. M. Jenkins—at that time Secretary of the Royal Agricultural Society of England—came to London to follow this out. In his earlier years he was demonstrator in physiology at one of the London Institutions, and in 1882 was appointed Lecturer on Agricultural Science at King's College, which appointment he held for many years till the subject was discontinued. He published his lectures in a large volume, under the title of "The Science of Agriculture," which was subsequently translated into several foreign languages. When the Royal Agricultural Society opened an analytical laboratory at 12, Hanover Square, Mr. Lloyd worked there four years with the late Dr. Augustus Voelcker, and was latterly the chief assistant, while later on he opened a laboratory of his own as an analyst and consultant.

In 1885 he was appointed Consulting Chemist to the British Dairy Farmers' Association, which appointment he held to the day of his death. He was thus associated with the British Dairy Farmers' Association for the long period of thirty-eight years—surely a big record!

The Milking Trials were established a few years before his time in a tentative way, only from 14 to 20 cows being under trial in those early times, when the cream percentage in test tubes was taken as well as the analysis. Later on, the present writer was his colleague in these trials, which had grown to mean about 80 analyses at each Show. The immense growth of the work in this department may be judged from the fact that at the recent Show there were over 500 analyses to be made. Mr. Lloyd was, therefore, a pioneer in this work, and it is only bare justice to say that he had more to do with the growth and development of the Milking Tests than anyone else, and it is mostly due to his initiative and fostering care that these trials are so big a thing now—one of the greatest, if not the very greatest of its kind, in the world. He had a long succession of colleagues at

the work, who dropped out one after the other, while he himself "carried on," and with enthusiasm, to the very end.

For the Bath and West of England Society he carried out a long and most exhaustive research into the chemistry of cheesemaking, especially as regards the development of acidity in curd—and the results were officially published in a bulky "Buff Book" some 20 years ago. He also did a lot of research work for the Society in connection with cider making—the great value of which was acknowledged at the time—and for several years he was joint-editor of their Journal, and many have, from time to time, expressed their high opinion of the work he did for it. For some time he had been editor of our own British Dairy Farmers' Journal, and his death leaves a gap in this work that will not be easy to fill. In his special profession he was a prominent Fellow of the Institute of Chemistry and of the Chemical Society, in both of which organisations he took a keen interest.

For many years also he was Consulting Chemist for Kent, and was an advocate for the founding of Wye College—probably the first to moot the project.

The British Dairy Farmers' Association has carried on year after year, with the exception of war-time, a long series of Conferences both at home and on the Continent. These were regularly attended by Mr. Lloyd, and no one took a keener interest or delight in their success, and to many of them, from the Derbyshire Conference in 1886 to the present time, he contributed papers and took an active part in the various discussions.

Of the man himself, the writer cannot do better than give extracts from two letters received from friends. The first is from Mr. Still, a former assistant of his, who writes :—

"Mr. Lloyd was an analyst of great ability. He was very orderly in his work and all his apparatus was exactly adapted for its purpose, while he had a fine appreciation of the essential points of the problem he was called upon to solve. As a friend he was very loyal, and glad to help where he could, and to appreciate any help given him, and, as you know, capital company.

"As a teacher he was excellent, insisting on fundamentals, and detesting slipshod work and untidiness. It was a recommendation to any laboratory to be able to say one had been a pupil of his.

"His tastes were artistic, while he was devoid of the faults or weaknesses attaching to the artistic temperament."

The other letter is from our colleague on the Council, Mr. Ashcroft, who writes :—

"Personally, as I have worked often with Lloyd in the past as judge and examiner, what always struck me was that he could

have made his mark whatever he took up, largely because he was so orderly and accurate, and had such a power of taking pains and working with care and perseverance till the job was done. The Milking Trials, in the inception of their details and in their progressive development and carrying out since they were started, are mainly indebted to him and his methods of work and thought.

“ But apart from his abilities as a chemist and bacteriologist, Mr. Lloyd was a tower of strength at the Council Table. As Mr. Still has said, ‘ he had a fine appreciation of the essential points of a problem ’ in hand. Few Members of the Council gave more thought to subjects which came up for discussion, both before and after the meetings, and no one could more readily see the good points or detect weaknesses and fallacies in anything suggested, and no one more ready or courageous to advocate with skill whatever he thought was best for the Association.

“ I have said he was courageous ; that, I think, was a feature of his character—he could face work, opposition, difficulties, illness, or domestic trouble, and other worries bravely and with endurance.”

The present writer cannot do better than repeat the statements made above. We were colleagues as judges and examiners on many occasions, and warm friends through the long series of years since he became chemist to the British Dairy Farmers’ Association—possibly Celtic affinity may have had something to do with it—yet all connected with the British Dairy Farmers’ Association are regretting keenly the loss of an able man in his own profession, a lifelong hard worker for the best interests of the British Dairy Farmers’ Association, and a valued personal friend.

DAIRY FARMING ON ARABLE LAND.

JESSE SKINNER.

AFTER the turmoil of the last 7½ years, agriculture, as well as industry, must get back to business, and to use the words of one of our responsible ministers, "Agriculture must work out its own salvation." If we agree that this is the position, and I believe that I am correct in assuming that most practical men confirm it, the question for each individual will be: How am I to make my farms a paying proposition? The late Premier told us in 1917, that it is incumbent, that we, as a nation, should arrive as near the point of self-sustenance as possible. I believe this was when the fear of the submarine was within us and when we could only count on about 14 days' food supply.

Now, the country needs cheap food. If we cannot supply it, the man overseas will assuredly do so. It is a problem which every British farmer must study if he is to work out his own salvation. We hear discussions. We see each day in our papers writers bewailing the sorry plight of agriculture. But I have yet to see or hear any possible scheme which will solve the problem, so that the farmer and his workers may receive a fair return for services rendered.

In accepting the invitation of the British Dairy Farmers' Council to write something on Dairy Farming for the forthcoming Journal, I feel a certain amount of diffidence, for one or two reasons, viz., lack of the qualifications which are necessary to a writer, and secondly, because I know that in writing an article for our Journal I shall have many keen critics on the Economics of Dairy Farming, and men who have greater experience.

It is only the very pleasant recollections of a happy time at the Reading Dairy Conference that gives me courage to take my pen, giving a short account of what I am doing, and which is my subject—"Dairy Farming on Arable Land."

I would like it to be quite understood that I do not belong to the large army of men with fads who propose to revolutionise industry. I claim to belong and am proud to be in the ranks of the army of British farmers who know all the difficulties which come into the life of all who live by the soil. My grandsire sold wheat at 100s. per quarter during the Crimean War, and I myself have sold wheat at 18s. per quarter. In mentioning this, I do so to emphasise the fact that all through my career the predominant factor has been my livelihood and, therefore, of necessity. It must be a paying concern. I have had 35 years at the game; old methods die hard; we are slow to adopt

new ideas. But in this world, evolution! and if we fail to develop with it, we shall find ourselves marking time, and be inefficient members of the class to which we belong.

Farming is not a gold mine, but if you want to have what I term the real fulness of life, I do not think there is another job to touch it, and nothing which contains so much variety and study. One could write volumes about the cow, and what she means to humanity and to the world, but it is only in the last few years that the cow is coming into her own and men are realising each year more and more that the cow is the backbone of agriculture.

As the main branch of my farming for many years, it has been my regular practice to carry throughout the year about 120 head of cattle, mostly cows.

Cows can and do consume more food than any other farm animal, and have the largest digestive organs. It is not so much the question of summer food to which I direct your attention, because we are not often worried about food questions at that period of the year. The worry, more often than not, is how to dispose of the milk.

If it were possible to feed cows during winter with the approximate ease of summer, it would revolutionise the whole routine of winter feeding to such a degree which cannot be calculated. Winter milk production is not an easy job. We are faced with climatic conditions and feeding questions which are akin to another clime in comparison to the summer months; the majority go on feeding in the same old way.

During summer there is the sowing of turnips, mangolds, cabbage, &c., clover and hay harvest about two years out of three. Hay and clover are spoiled and practically no use for what they are intended, poor root crops, and any profits which may have accrued during the summer are swallowed up by payments of larger bills for artificial foods, replacing farm crops which have been ruined by climatic conditions, and the life of the farmer is one continual worry in finding suitable and sufficient foods.

SILOS.

I suggest that vendors of silos should borrow the advertisement belonging to Messrs. Pears, but instead of the child reaching for the soap, I should show the farmer longing for a silo—"He won't be happy till he gets it." At least, this is how it is presented to me.

I erected two 36 ft. by 18 ft. silos in 1920; with their aid the feeding of cows during winter has been made easy and they are very little more trouble than in summer, because I know that within my two silos I have approximately 370 tons of good, sound, and sweet succulent silage.

In 1921, my neighbour's hay crop failed, owing to drought. The year previous thousands of tons were wasted by rain. Both years I had no worry and no loss; silos have made my work a real pleasure and have completely eliminated all cause for anxiety in winter foods.

I know how much it costs to produce winter milk and I know the silo has conferred upon myself a far greater benefit than any other experience during my career.

How many of my brother farmers have seen their cows being fed with hay? And instead of those cows consuming it, turn it over and trample under their fore legs, and eventually that same hay arriving at the manure pit. I have ploughed up my grass land that for centuries, I suppose, had been producing the proverbial one ton of hay. I get 10 to 12 tons of silage crop now off that same land and it is the best means of paying cake bills that I have discovered. I have made many experiments during the last 3 years, viz., sun flour, maize, &c., &c., but I have satisfied myself that the family of legumes are those which give the best results. My object is to grow the biggest crops containing the greatest food values.

One of the most startling disclosures I have to make in giving my methods is that my cows came up from pastures the first week in October, and they have not received one pennyworth of artificial food; the whole herd has not varied more than five gallons in any one week to this moment (November 25th), and this in a herd of 90.

Silage is the nearest approach to grass that it is possible to procure and by taking legumes for my crops, I am in a position to follow out the findings of our agricultural scientists for a balanced ration.

I do not profess to know what vitamins are, but I believe they are there right enough, the same as daylight and dark.

We all know that a balanced ration must be our object; silage made from legumes contain their proportion of vitamins and assist very materially towards our object.

I am taking farm costings this year in conjunction with one of our agricultural colleges, and a master of economics is in charge of the work. It is being carried out with most careful scrutiny, but, unfortunately, at the moment figures are not available.

FILLING SILOS.

The biggest job is undoubtedly the filling of silo. There is no doubt that one or two of the men got a bit of hard work this year—our crop has been beans, tares, and winter oats, sown in the autumn, and in many places the oats were six feet high. It seems to me that the oats benefit very materially from the fact of their being growing along with legumes. It is a very tangled affair after the grass reaper has been round and the only thing we can do is to follow the reaper round, gathering up after her. The tares and beans form such a mass that it is as I say rather a trying operation for men, and needs a man who is able to do a day's work. I cut mine when the crop is at its best, or nearly its maximum. This means that it is very heavy, and rather than carry big loads we find it is policy to have a continuous stream of boys with cart (one horse) from field to silo, the further

away, more carts. I have a Massey-Harris Blizzard, which is quite a remarkable machine; the faster you feed, the better she seems to like it, and it is really wonderful the way that it is blown up 40 feet high into the silo.

The question of grass (hay) versus silage cannot be compared. After three years' trial, I find that the costs of feeding with silage are reduced by approximately one-half in comparison with hay and it is a great step towards cheaper food, which, if we are to continue in business, we must produce.

Try silos! And home-grown foods for all farm animals is, to my mind, an alternative to arable land tumbling down to grass and farm labourers driven away into the towns. It is not only that I have abundance of sweet succulent food, the next best to grass, but a silo assists me in the whole rotation of crops. A silage crop is a smothering crop, and leaves the soil better than it found it.

I have 30 acres of beans and tares this autumn and they are now well above ground and they are as sure as anything can be in farming to give my silos a big lift for next winter feeding. My men have given the silos the name of bottomless pit and anyone who has had no experience of their ability to swallow up crops cannot have any idea of the capacity. I have 20 acres of clover in reserve and when prospects are more defined I can sow peas in spring, if required.

My silage crop this year is sown on wheat stubble after potatoes. I dress with 6 cwt. of basic slag and nothing more is required until it is ready for placing into silo. This comes at a time of year, say, middle of June, when all farm work is pretty-well advanced and no matter what the weather may be at the time, we go on storing our winter fodder.

It is quite reasonable to expect a crop of turnips after the silage crop has gone off, and the last two years I have taken a crop of potatoes. To do this, the seed must be in chitting boxes and well sprouted. This has been a late year and the potatoes are not quite the success they were last year, but they are useful seed, and if a second crop is not required, there is no better way of bringing soil into proper tune. If we consider that a smothering crop has been taken off by the middle of June, there is almost time for a summer fallow, and it is bound to bring a good tiller to the soil, ready for almost any crop one may choose, and the adoption of the silo into rotation of farming gives a clean farm and bigger crops. This year, one part of my silage stubble has been ploughed and worked and is now receiving 20 loads per acre of manure in preparation for potatoes next year. Another few days this will be completed, when the field will again be ploughed about eight inches deep ready for spring planting. As a student in agriculture all my life and with that expectation to the end, I cannot see anything in agriculture to be very optimistic about.

But we have had depression in agriculture before, and I have known many times great difficulty in raising the wind for my next audit, but the men, by birth and breeding, the yeomen farmers, know

full well they must go on and face the music. It is estimated that over 20,000 farmers have become their own landlords. They have shouldered the burdens of their wicked landlords at the same stroke of the pen. Many of those men have lost a fine friend, in addition to losing their landlord.

Through this transition which I have mentioned, the agricultural position of this country has assumed a far more serious outlook than ever before during my time. One of the greatest national questions of the day is now before the country: What are we going to do with our greatest industry and heritage? It cannot wait, it cannot hope to receive any national assistance from any government, and we come back to the phrase "Agriculture must work out its own salvation," and as my old schoolmaster used to tell us, "God helps those who help themselves."

If you proceed to market on any market day about every third man you meet is a merchant or agent who gets his living out of farmers. One of them told me last week that if all farmers were to erect silos half the men in his trade would have to find another business. It would be preposterous for me to advocate a clean cut in artificial foods, and I do not for one moment insinuate that this should be done, but we are living in precarious times, times which demand tranquility in the use of cheque books and more home-grown foods brought into use, and I do say that two-thirds of our cake bills can be cut out. I know what cake bills take paying, and I know many times when they have been paid there has been nothing left only manure as a consolation. I believe after three years' trial that I have found another method to work out my salvation.

The only scheme (except Tariff Reform) which I can observe towards this end is by becoming as near the point of self-supporting by home-grown foods. It is the constant pay, pay, pay, for artificial foods which upset the balance at the end of the year, and I guess that many of my brother farmers who have dissected their accounts at the end of the year, have discovered on more than one occasion, that those items have been one of the most alarming payments.

The silo with me comes next to the cows themselves. I have never yet heard of any objections to silos, except that they are too costly. I do not mind the cost whatever it may be. In normal years it will pay for itself first year. Because in three years it is fairly safe to predict that either hay has been spoiled by rain or that there are no roots because of drought.

There is nothing so generous as our soil and there is nothing so neglected. It is crying out wherever you may look for Humus, Humus, Humus! I can see each year my crops are better and the general tone of the farm is being improved by the adoption of silo, farming operations are made less irksome, but above all other claims is the knowledge that more manure is available for the soil, which is its greatest need.

There is not any shadow of doubt that our soil is suffering from

exhaustion of the principal element necessary for plant life, and although it is possible for a time to carry on with artificial fertilizer, it is only an apology for real good farm-yard manure.

I have a field this year which has produced 10 tons of potatoes to the acre. It only came into my possession three years ago. For 20 previous years this field had scarce paid for seed and labour. It was two miles away from the farm-yard and after the fields near the yard were manured, this field received none, and this is an illustration of thousands of acres in our country to-day.

Bigger crops, more cattle, more milk, more manure! Silos are an insurance against food shortage, and the silage is the nearest approach to grass, which is nature's perfect food for cattle, and which we should try to imitate as near as possible.

It has been said that silage taints the milk. Abuse applies to many items on and off farms. Silage gives out a strong sweet aroma, and if we do something which is contrary to all the laws of clean milk by leaving churns in the cow sheds during and after milking, I fancy one would get exactly what one were asking for, "Tainted Milk." I should place silage in the same category as turnips, carrots, cabbage, &c., which, if applied to excess, will undoubtedly give flavour to the milk.

My cows are now receiving about 50 lbs. of silage per cow. It is a mixture of beans, tares, and winter oats, which were secured at the proper time, viz., just when the plant contains the most nutriment, together with succulence. I submit that those cows are receiving a more perfect food than is possible to procure in any other way. If proof were required I would leave it to the cows and they should give their verdict; cows prefer silage of the kind that I have mentioned and will take it before any other food.

I have made excellent silage from meadow grass, and I believe that it is equal to good hay. But it is not nearly so effective in economics in comparison to arable land, owing to its low yield per acre.

There are thousands upon thousands of acres of so-called grass land in our country, but it is unable to do justice to any live stock which is expected of it. I submit there can be no profit from land of this description.

There should be, of course, discretion in the ploughing out of grass land, but with that discretion, I am convinced that a very large area by enlisting the silo can be made to produce one-hundredfold.

This brings me to the crux of the question which concerns all who are engaged in agriculture and who must live by it, "Supply and Demand." England is a nation of shop-keepers. She has the finest markets of the world, which attract producers from all parts of the Globe. It is a paradox that the world's market is at our feet, and yet the greatest difficulty of the farmer is to make his job pay.

There must be something fundamentally wrong. Foreign produce would not come here year by year in one continuous increasing stream

if that produce were losing money, and it seems the only solution can be "The working out of our own salvation." It is obvious that I cannot encompass within such an article as this the whole detail of the working of arable land as a dairy farm. I have told of the silo, and how it assists and what I have proved by experience of its immense advantages to myself.

Our food bill from overseas is, I believe, about 250 millions per annum, and if we are to retain the agricultural community of these islands in a decent state of comfort and happiness, it cannot be done by putting back the hands of the clock, neither will eight hours a day assist us to a higher level of efficiency.

Cheaper production is the key. Competition is severe, and if we make no attempt to produce cheap food by hard work, initiative, and the utilisation of all modern methods we shall remain crying out in the wilderness. The point which I have tried to make is that whether we are out for milk, butter, cheese, or beef, silos are an absolute necessity towards our aim and object, viz., cheap production of food. If we allow ourselves to fail England will revert to a pastoral country, thereby sacrificing her rural population and the first great step towards decay of a nation.

I submit that silos and home-grown foods for our animals will stem the torrent of foreign competition more than any other known method.

THE SILO: A FEW GENERAL OBSERVATIONS ON WORKING.

It is estimated that a 36 ft. by 18 ft. silo will, when full to the top, contain enough food to feed 40 full-grown cattle for six months. To one who is contemplating the adoption of the silo a few hints on the practical working might be of interest. If only a small herd is being catered for it is not wise to buy greater capacity than is needed. Silage is at its best when taken fresh from the silo, and I cannot compare it to anything better than fresh brewers' grains from a keeping point of view. Grains are always best when fresh; so it is with silage, and in buying a silo, it is best to keep this in mind, so that when one begins to feed, it is always possible to use up a thin layer off the top each day. In working out our farm costs this year it is most interesting to find the actual cost of silage, and although not complete we are able to make a very approximate estimate and the cost per ton of silage is under 15s. per ton. This is food value double that of roots.

Considerable difference of opinion exists as to which material is best for silo construction, and personally, I think it is a matter of opinion, and it is better to erect a silo than not one at all.

I have found that it is not easy to estimate what quantity of green crops one will need to fill the silo, but on ordinary average soil, I believe from 10 to 12 tons per acre can be grown year by year, and if we take say a 36 ft. by 18 ft. silo, with an estimated capacity of 200 tons, I believe this would be a guide.

The process of filling is done at almost the best season of the year, and no matter what the weather be at the time, the work is not hindered. There is a small matter which might be useful to a beginner. I believe, invariably, the convert starts off rather cautious, and has not sown enough land with silage crops; if this should occur, and meadow hay grass has to be utilised, it is best to place the grass in first, owing to the fact that the juices of the legumes settle down and impregnate the lower portion. My first year, I had considerable loss in the juices percolating through and out at bottom of silo, but I am inclined to think this was through cutting the crop too green and not allowing a day or two for it to wither. I prefer to allow it to become ripier, and although rather more indigestible, I believe it suits my mode of feeding better, and I have no loss from this source.

In filling silos, my method is to have about three days at one silo and change over for three days at the other, which brings it all about the correct temperature. This is, to my mind, important. Many farmers dry their hay far too much, and hence produce an article less nutritious than it should be. Others allow their crops to become too ripe, which results in too much woody fibre. There is very little difference in cutting stages for silage and for perfect hay-making. Both crops should be cut while green and succulent. In making hay, the idea is to prevent a strong fermentation setting up after being carted, whereas in silage making, the idea is to encourage fermentation for a time at least.

The one process preserves by drying fast, the same as fruits are preserved by drying, whereas the other is to preserve the food in a green state by means of a controlled fermentation.

SWEET AND SOUR SILAGE.

To my mind there is very little difference between them as a food; sour silage will contain more acid and less sugar, and may be more appetising to some animals, while in the sweet silage less of the sugar has been formed into acid, and hence the food is slightly more nutritious. The production of either depends on the character and degree of fermentation.

By filling slowly, so as not to cause great pressure on the bottom layers of fodder, we ensure a quick fermentation, and then by adding further fodder we add more weight, thus shutting out fresh oxygen and checking and controlling the amount of fermentation and, generally speaking, fodder preserved at temperature, say, below 120 Fah., will result in sour silage being produced.

The method which I have found quite successful is to partly fill the silo, say, to one-third of its height, packing it well, especially round the sides in the meantime, and then allowing two or three days for it to subside before filling again commences. If this is repeated in five or six stages, I find much more fodder can be put into the silo

than if it were filled in, say, one or two stages. When the silo is filled, the question of a seal for the top part arises. I have heard of various devices and, no doubt, there are many, but I always reckon for a certain small amount of waste at the top, say, 10 to 12 inches.

My methods are to top up with something that cannot be wasted, viz., a few loads of hedge trimming and grass from ditches, and I find that my silage crop is preserved.

In filling silos, it is necessary to have a special cutter with power to blow in at top. I made enquiries from relatives in the States and after their verdict on the efficiency of their machines I decided upon the Massey-Harris Blizzard, and I have been more than satisfied with her work. The rate and power of this machine in dealing with green fodder is a triumph for the engineers. When you consider green beans and tares being blown up a spout 40ft. high and being swallowed up by the machine as fast almost as it is possible to bring from the field it is really wonderful.

To the man who already has a portable power chaff-cutter, the exchange for suitable silage cutter would not be a very serious matter, and the Blizzard will answer for chaff cutting by placing in special knives and changing the gear with which it is equipped.

In my humble opinion, a silo on a farm is a necessary element of safety against food shortage by being an insurance against drought or climatic conditions whatsoever, as a silage crop is more reliable than any other, owing to the fact of our having a double chance by sowing in the autumn. If this should fail or come thin, there is time to fill up at spring.

COWS' MILK FOR INFANT FEEDING.

By Miss ELSIE G. COOK, N.D.D.

PRIZE ESSAY.

As on the health and stamina of the individual the race depends, it is essential that we start from birth, by building up as sound and strong a constitution as possible. Strengthening and developing the strong child and helping the weak and delicate one, by proper feeding, which will promote a good digestion, sound bones, teeth, and muscular limbs, on which so much of its after-health, strength, and vitality depend.

Undoubtedly, the best food for an infant is its own mother's milk, but, for various reasons of inability or selfishness, of which it is not the object of this article to deal, a substitute has to be found in many cases.

Connected with a retail dairy business, the need of a good substitute was brought constantly and forcibly before me, as I learnt the great difficulties many mothers, doctors, and nurses have in rearing children, and especially delicate ones, on artificial foods.

I have seen children literally starving, not from lack of food, but from malnutrition, caused by inability to digest the foods given, while others were greatly troubled with either constipation or diarrhoea, always ailing and fretful, instead of the happy contentment of the well-nourished infant, and others were fat and flabby, lacking muscle and bone.

Seeing and hearing these difficulties led me to try what I could do to solve the problem, and find as near a substitute as possible for human milk.

The composition of cows' and human and humanized milks was given by Mr. F. J. Lloyd, F.C.I., in the BRITISH DAIRY FARMERS' JOURNAL for 1897, as follows:—

	Average Composition of good Cows' Milk.	Average Composition of 200 samples Women's Milk. Dr. J. König.	A Sample of so-called Humanized Milk.	Another Sample of Humanized Milk.
Water	87.5	87.4	91.1	89.4
Fat	3.5	3.8	1.1	5.2
Casein	3.0	1.0	0.9	1.3
Albumen	0.4	1.3	0.2	0.3
Milk Sugar	4.9	6.2	6.5	3.5
Mineral Matter ...	0.7	0.3	0.16	0.3
	100.0	100.0	99.96	100.0

The composition of cows' and human milks differs considerably, especially in the proteids; and while human milk gives a neutral or alkaline reaction, cows' gives an acid one, and the milks differ not only in their analytical qualities, but also in their digestibility.

Dr. W. B. Cheadle says in his book on "ARTIFICIAL FEEDING OF INFANTS": "This inferior digestibility of cows' milk is due to the character of casein, some difference in its chemical composition, or the arrangement of its molecules, so that when in contact with the acid of the gastric juice, it coagulates in massive clots, which are in striking contrast to the small, light, flocculent coagule of human milk. . . . If human milk and cows' milk, with a small quantity of digestive fluid are kept at a temperature of 100° F., i.e., artificially digested, the solid curd of cows' milk takes a very much longer time to digest than the light flocculent curd of human milk. Again: If a little dilute acetic acid or vinegar is added to human milk, almost uniformly liquid, a minute, light, flocculent curd is alone precipitated. If added to cows' milk, it leads to formation of large masses of coagulated casein."

Here is the great cause of the inability of infants to digest cows' milk, as, apart from the greater indigestibility of its casein, it contains a large excess of it and a deficiency of the soluble albumen as compared with human milk.

Farinaceous Foods contain too much carbohydrate and not enough proteid matter, so that children fed on them are inclined to get fat and flabby and very apt to be rickety from lack of soluble mineral matter and also the essential qualities of fresh food. Even if fresh fruit and raw meat juices are given, such foods are not a very satisfactory substitute.

Condensed Milk, though largely given to their babies by the poorer classes, is unsuitable, as even when it contains full cream of milk, it is deficient in soluble mineral matter and the qualities of fresh milk.

Peptonised Milk is useful, on occasion of breakdown of digestion through illness or improper feeding, but should not be continued longer than absolutely necessary, as its long continued use may lead to impairment of the digestive organs.

Sterilized Milk was strongly recommended by the medical profession a few years ago for infant feeding, by reason of its freedom from tuberculosis or other disease germs, but it is not so often done now.

It has been found that the precipitation of mineral matter, the coagulation of albumen, the destroying of vitamins and enzymes, are all produced by heat; and to one or more of these causes, rickets are probably due.

I will mention two cases of this effect that came under my notice.—One: A doctor told me his two elder children were fed on *Sterilized Milk* and both developed rickets, but his younger child was fed on fresh cows' milk, unsterilized, because he could depend

on milk I supplied him with. The child grew strong and well, without the slightest sign of rickets, although treated exactly the same as the elder children, except that its milk was unsterilized.

In the other case, a lady fed her baby on sterilized humanized milk, and one day, when the baby was a few months old (the nurse being away for the day), the mother bathed it herself and the child started screaming when she touched it, as though it was hurt. Knowing she had not injured it and seeing something was decidedly wrong with the child from its continued screams, she sent for the doctor; an authority on children, he at once said it was incipient rickets and she was to give it fresh milk. On giving it, the change was marvellous; its screaming ceased, even when its limbs were touched, and it seemed quite happy and contented, as though the milk had supplied an urgent need.

Was it soluble mineral matter or vitamins it needed?

But one thing I should say here is, that, I found sterilized milk gave a slightly more flocculent curd and rather more peptones on being digested with pepsin than unboiled milk, contrary to my expectations.

If milk is modified with barley water, lime water, &c., it certainly decreases excessive casein and helps to split it up, but it diminishes the already low albumen, and all such modified milks, even should they contain same amount of proteids, fat, and lactose, taste poor and watery.

I suppose there is not that perfect emulsion, as with the natural water in milk.

Here are two Formulæ for humanized milk from "HOLT'S DISEASES OF INFANCY AND CHILDHOOD," a Standard Work on Childhood.

No. 2, for third to fourteenth day:—

Fat ...	...	2.0%
Sugar ...	...	6.0%
Proteids ...	...	0.6%

Quantity of each ingredient to prepare 40 oz. food: of Milk, $2\frac{1}{4}$ oz.; Cream, 16%, $3\frac{1}{2}$ oz.; Water, $26\frac{3}{4}$ oz.; Milk Sugar, $1\frac{3}{8}$ oz.

No. 7, for 6 to 9 months old:—

Fat ...	...	4.0%
Sugar ...	...	7.0%
Proteids ...	...	2.0%

Quantity required to make 40 oz. food: of Milk, $13\frac{1}{2}$ oz.; Cream, $6\frac{3}{8}$ oz.; Water, 20 oz.; Milk Sugar, 2 oz.

No. 7 I worked out to contain from average milk: Water, 87.2; Fat, 3.68; Casein, 1.41; Albumen, 0.21; Sugar, 7.04; Ash, 0.31.

This excess of one proteid and shortage of another led me to try and find a substitute.

It was easy to subtract excessive casein, but that did not increase albumen. I first tried cows' colostrum, because of its excessive albumen and I also thought its laxative tendency might be a help, as the constipation with many children fed on cows' milk is a serious problem.

Colostrum varies much in its composition and appearance: sometimes I found it fit to use the first milking, at other times not till second or third. A typical Colostrum Analysis is:—Water, 74·57; Fat, 3·59; Casein, 4·04; Albumen, 13·60; Sugar, 2·67; Mineral Matter, 1·56, and I used up to 10% of Colostrum with Milk, Cream, Lactose, Whey, or Water to make up requisite proportions, to as near as possible human milk. I found that infants liked it and it seemed to suit them and they thrived on it. I should here mention that it was usually only very delicate infants or those whom mothers found a difficulty in feeding that I supplied with humanized milk.

I applied for and was granted a Patent for it, giving proportions to make composition as follows:—

Water ...	...	...	87·281
Fat ...	...	...	3·933
Casein ...	...	...	0·973
Albumen ...	...	...	1·220
Milk Sugar ...	...	...	6·293
Mineral Matter ...	...	...	0·260
			<hr/>
			99·965
			<hr/>

A sample analysed by Dr. Ralph Vincent, he gave as follows:—

Fat ...	...	...	3·20
Casein ...	...	...	0·85
Albumen ...	...	...	0·90
Lactose ...	...	...	5·83
Mineral Matter ...	...	...	0·40
			<hr/>
Total Solids ...	...	...	11·18
			<hr/>

I sent samples to "The Lancet," which said: "We have received two samples of milk from the above farm, which have been modified to meet the special requirements of infants. According to our analysis, this process succeeds in bringing the composition of cows' milk very closely to that of human milk. An important feature is that the anti-scorbutic qualities of the fresh milk are retained unimpaired."

But there arose the difficulty of not having a constant supply of colostrum at hand, and I failed to find any method of keeping it for long, so I fell back on a method of increasing albumen in the milk by white of egg, using it with whey, milk, cream, and milk sugar. The white of eggs was well beaten up before being added to other

ingredients. Sometimes I used a little yolk too, which is rich in fat and vitamins, but I was chary of using too much of this, knowing how quickly the system of some people rejects yolk of egg.

Sometimes when children were very weak and ill with digestion very bad, I left no casein in milk at all, just using whey and egg albumen, with added cream and milk sugar, and as they got better, *very gradually* added milk. Each child's milk was made specially for itself, and in this lay, in a great measure, the successful feeding of children, for whom I made the milk.

In making humanized milk I found that skimmed cream made a much better emulsion than separated. If separated is used, it must not be run off separator too thick.

I found it advisable not to tell mothers when I altered the constituents of milk. Some mothers are too anxious when they find the child is thriving on the milk, to have it made "stronger." They seemed to think that as the child was doing so well, it would thrive even better if the milk was made "stronger," which usually meant more casein, and probably more than the child could digest. I believe they also thought they would be getting better value for their money.

Here I may say that though I charged higher price than for ordinary milk, yet I did not charge prices that paid me for the time and care expended on making it, at least not on the scale I did it.

This brings me to the second problem I tried to solve: How to keep it for a reasonable length of time, say a week or two, so as to put it on the market commercially, without destroying its anti-scorbutic qualities. I had only been supplying it locally, except in a case or two where I sent it daily, by post, to children 100 miles away. I tried Pasteurization and intermittent Pasteurization at moderate temperatures so as not to coagulate albumen or destroy its anti-scorbutic qualities, but was not successful in keeping it for any length of time. Then I tried a process of the AERATED MILK AND CREAM Co., who put it under gas composed of 75% Oxygen and 25% Carbonic Acid, with 50 lbs. pressure to the square inch. While this did not appear to alter milk at all, it failed to make the milk sterile. Some of the bacteria or their spores survived, so that one could not depend on its keeping.

I was hoping another method by ultra-violet rays might be more successful, but this too failed to realize my hopes.

Before the war, a German banker approached me (having heard I was interested in the matter) to see if I would experiment with saccharite of lime to make casein soluble, but while it made casein soluble while alkaline, it was not so under action of gastric juices or acids.

I think there is a real need of a good humanized milk to be put on the market at a reasonable price, especially one retaining all the anti-scorbutic qualities of fresh milk, and now that there has come about such a big amalgamation of London dairies, I should think it

would be feasible for them to make it and distribute it quickly, so that just one very moderate Pasteurization with low cooling would be effective and enable them to retail it at a moderate figure.

There is a real necessity for it, more especially owing to the almost universal Pasteurization of milk in London. This I think constitutes a *real danger to infant welfare*, outweighing the danger of tuberculosis from the cow, for it destroys some of the essential things a baby needs for its growing body. It is not as though commercial Pasteurization was kept below 158° F.

Below I give a formula for making humanized milk (which I sent to the mother of a delicate child some distance away), as perhaps it may be of use to someone else :—

Milk and Cream	...	25 parts or $1\frac{1}{4}$ pints
Whey	...	75 " $3\frac{3}{4}$ "
Sugar of Milk	...	2 " 2 oz.

Set up in a vessel, 6 pints of warm milk, for cream to rise, in a cool place, for two or three hours ; in cool weather set up afternoon's milk and leave till next morning.

Then skim off cream and enough milk to make up $1\frac{1}{4}$ pints, set aside.

Dissolve a piece of rennet tablet or take liquid rennet enough to coagulate the skim milk and stir in. Place in double china or enamel saucepan with outer one containing cold water, and place over fire, heat up to 130° to 150° F. to first coagulate milk and then to destroy rennet's action and also to cause whey to divide from curd ; as whey coagulates break up curd with spoon.

When heated to above temperature, strain off whey and to $3\frac{3}{4}$ pints of it add the $1\frac{1}{4}$ pints of combined milk and cream and 2 ounces of milk sugar (always use milk sugar, as cane or beet is unsuitable, being liable to cause fermentation in the child's stomach), return to saucepan and heat to 150° F., when this temperature is reached draw off fire and allow to stand at this temperature of 150° F. or thereabouts for 20 minutes. It should not fall below 140° F., nor rise above 158° F.

Bottle or keep covered from contamination and cool as rapidly and low as possible.

When using, shake bottle to mix cream, pour off required amount and heat to 95° F., before giving to baby.

I gave no egg albumin in this formula, as when I gave it in one to another mother she wrote and said : " The egg was in white, hard lumps in milk," showing she had *not beaten it up* and *had heated to too high a temperature*.

I am indebted to several Medical men and to Mr. F. J. Lloyd, and another Chemist, for their kindness and help to me in many ways when trying to find a solution of this problem of preparing milk for the feeding of infants.

CREAM - RISING POWER IN THE MILK FROM DIFFERENT BREEDS.

By J. DINGLE WILLIAMS, N.D.D.

THE following results of some experiments carried out at the London Dairy Show, in 1921 and 1922, are of more than transitory interest.

Demonstration of 1921.

In order to demonstrate to the public the variation in the depth of the cream layer and the colour of the cream from the milk of each of the breeds competing at the London Dairy Show in 1921, composite breed samples were placed in glass cylinders, of the same diameter, for the same length of time, in a cold store. When sufficient time had been allowed for the cream to rise, they were removed simultaneously and exhibited on the Stand of the British Dairy Institute. The exhibit created a great deal of interest, as the several samples showed wide variations in both depth of cream layer and colour; but, as the fat percentages of the samples had not been taken, the actual cream-rising power could not be investigated. It was also realised that, owing to this omission, the demonstration was, to a certain extent, misleading as an impression was conveyed to the lay mind that the richness of the milk was relative to the colour and depth of cream in each case. This assumption was readily disproved by reference to the averages of fat percentages taken at the Milking Trials, from which it was seen that the two milks which showed the least depth of cream (those of the Ayrshire and the Goats) were amongst the richest tested.

Demonstration of 1922.

The demonstration was repeated at the London Dairy Show, in October, 1922, and, with a view to making it more educative, the fat percentage of each sample was determined, and a note made of the relative depth of the cream to the total depth of the milk in each cylinder.

Method of Sampling and Testing.—The samples were taken at 6 a.m. on the morning of October 19th. The object of the demonstration was previously explained to the herdsmen, who kept the milk from each breed separate, a specially labelled 17-gallon churn

being provided in each case. Every care had been taken to ensure that the churns were thoroughly cleansed and sterilized. The milk was poured into the churns through cloth strainers immediately after it was drawn and, as each churn was filled, it was removed to the Working Dairy where the samples were taken. For the latter an equal quantity was taken from each churn by drawing a cylindrical measure from bottom to top, the contents having been previously well mixed by a plunger. After equal amounts from each sample had been placed in glass cylinders for demonstration, the remainder was again plunged and the percentage of fat determined by taking the average of three estimations by the Gerber method. Meanwhile, the glass cylinders were placed together in the cold store, which was kept at an almost constant temperature of about 40° Fahr. They were removed to the British Dairy Institute Stand at 3 p.m., being handled carefully so that the cream line was not interfered with. The amount of cream was measured at 6 p.m., on October 20th (36 hours after milking and 27 hours after removing from cold store), by computing the depth of the cream as a percentage of the total height of the milk in the cylinder. The results obtained were as in the attached tables.

TABLE I.—Arranged in order of fat percentage.

	Breed.	Order in Table II	Fat.	Cream.	Colour of Cream.
			%	%	
1.	British Friesian	3	2·85	11·19	B
2.	Red Poll	4	3·05	11·54	C
3.	Kerry	6	3·10	12·70	C
4.	Shorthorn	2	3·20	10·60	D
5.	Devon	11	3·60	15·62	E
	Average all breeds	—	3·67	13·82	—
6.	Ayrshire	7	3·70	13·43	C
7.	Lincoln Red Shorthorn ...	5	3·75	12·52	D
8.	Welsh	9	3·95	15·04	E
9.	Guernsey	12	4·00	15·85	F
10.	Goats	1	4·05	4·35	A
11.	Dexter	8	4·10	14·72	D
12.	South Devon	10	4·15	15·08	E
13.	Jersey	13	4·65	17·55	E

Colour key to above:—A, Very Light; B, Light; C, Fairly Light; D, Fairly Deep; E, Deep; F, Very Deep.

TABLE II.—Arranged in order of percentage of Cream.

	Breed.	Order in Table I.	Fat.	Cream.	Colour of Cream.
			%	%	
1.	Goats	10	4.05	4.35	A
2.	Shorthorn	4	3.20	10.60	D
3.	British Friesian	1	2.85	11.19	B
4.	Red Poll	2	3.05	11.54	C
5.	Lincoln Red Shorthorn	7	3.75	12.52	D
6.	Kerry	3	3.10	12.70	C
7.	Ayrshire	6	3.7	13.43	C
	Average all breeds	—	3.67	13.82	—
8.	Dexter	11	4.10	14.72	D
9.	Welsh	8	3.95	15.04	E
10.	South Devon	12	4.15	15.08	E
11.	Devon	5	3.60	15.62	E
12.	Guernsey	9	4.00	15.85	F
13.	Jersey	13	4.65	17.55	E

Colour key to above :—A, Very Light ; B, Light ; C, Fairly Light ; D, Fairly Deep ; E, Deep ; F, Very Deep.

Observations from Results Obtained.—By comparing the positions of the breeds in Tables I and II it will be seen that there is comparatively little relationship between the fat content and the corresponding cream line in each case. Also in Table I the colour of the cream does not necessarily deepen as the fat content increases, the most obvious examples being that the deepest in colour—that of the Guernsey—has the same content of fat as the lightest in colour—that of the Goats ; also the colour of the Devon cream is deeper than the Ayrshire, although the latter has the higher fat percentage. In Table II it will be found that the colour deepens in almost direct proportion to the percentage of cream ; but the colour of the Guernsey cream is deeper than that of the Jersey, although the percentage of cream is greater in the latter. From the above it can only be inferred that the colour of the cream, other conditions being equal, bears a closer relation to the percentage depth of cream than to the fat percentage in the milk. In neither table, however, can a comparison be made of the amount of cream in relation to the fat content in each case.

This can be more easily examined by plotting graphically the fat percentages against the percentages of cream, as shown in the

accompanying graph. The lines radiating from the point of origin indicate the percentage of cream obtained relative to the fat present in each milk and signify the cream-rising power.

The milk of the breeds, omitting the Goats, may now be arranged as follows :—

In order of <i>Fat Percentage.</i>	In order of <i>Percentage of Cream.</i>
1. British Friesian.	1. Shorthorn.
2. Red Poll.	2. British Friesian.
3. Kerry.	3. Red Poll.
4. Shorthorn.	4. Lincoln Red Shorthorn.
5. Devon.	5. Kerry.
6. Ayrshire.	6. Ayrshire.
7. Lincoln Red Shorthorn.	7. Dexter.
8. Welsh.	8. Welsh.
9. Guernsey.	9. South Devon.
10. Dexter.	10. Devon.
11. South Devon.	11. Guernsey.
12. Jersey.	12. Jersey.

In order of <i>Cream-Rising Power.</i>	In order of <i>Depth of Colour.</i>
1. { Shorthorn. Lincoln Red Shorthorn.	1. British Friesian.
2. { Ayrshire. Dexter. South Devon.	2. { Red Poll. Kerry. Ayrshire.
3. { Red Poll. Welsh. Jersey.	3. { Shorthorn. Lincoln Red Shorthorn. Dexter.
4. British Friesian.	4. { Welsh. South Devon.
5. Guernsey.	5. { Devon. Jersey.
6. Kerry.	5. Guernsey.
7. Devon.	

Averaging these positions in each case, the breeds assume the following order of merit when the above four properties are considered collectively :—

- | | |
|-------------------|---------------------------|
| 1. Jersey. | 6. { Ayrshire. |
| 2. Guernsey. | 6. { Kerry. |
| 3. { South Devon. | 7. Lincoln Red Shorthorn. |
| 3. { Devon. | 8. Red Poll. |
| 4. Welsh. | 9. Shorthorn. |
| 5. Dexter. | 10. British Friesian. |

The point Av. in the graph marks the average fat percentage and percentage of cream for all breeds, and if vertical and horizontal

lines are drawn through this point the milks can be arranged in groups with regard to the way in which they differ from the average.

Group I.—Below the average percentage of both cream and fat
British Friesian.
Red Poll.
Kerry.
Shorthorn.

Group II.—Below the average percentage of fat, but above the average percentage of cream
Devon.

Group III.—Above the average percentage of fat, but below the average percentage of cream
Ayrshire.
Lincoln Red Shorthorn.

Group IV.—Above the average in both percentage of fat and percentage of cream
Welsh.
Guernsey.
Dexter.
South Devon.
Jersey.

The milks are arranged in order of increasing fat percentage in each of the above groups, as indicating their value for yield of cheese or butter per gallon of milk according to their suitability for either purpose.

Value for Cheesemaking.—The most desirable type of milk for use in cheesemaking, when quality is considered, is that in which the fat remains most evenly distributed throughout the mass when the milk is developing acidity, although it is raised to a temperature at which the difference in density between the fat globules and the surrounding serum is greatest, *i.e.*, when the fat globules will rise most quickly to the surface. To obtain this even distribution the difference in density between the fat globules (or their aggregations) and the surrounding serum must be the least possible, so as to prevent the rising of the fat and preserve a homogeneous mixture throughout. This condition should tend to encourage a more uniform development of acidity for, if the cream rises, there is relatively more food in the remaining serum for the lactic acid-producing bacteria than in the cream where the fat globules are more amassed. In such a mixture also where the fat does not rise rapidly it will be more uniformly enclosed by the casein and more evenly distributed in the curd and final product.

As, within certain limits, the casein content in the milk increases in a widening ratio as the fat content increases, the most suitable milk for obtaining a high yield of cheese is that with the highest

content of fat capable of being held by the casein. This is usually taken to be about 4 to 4.5 per cent.

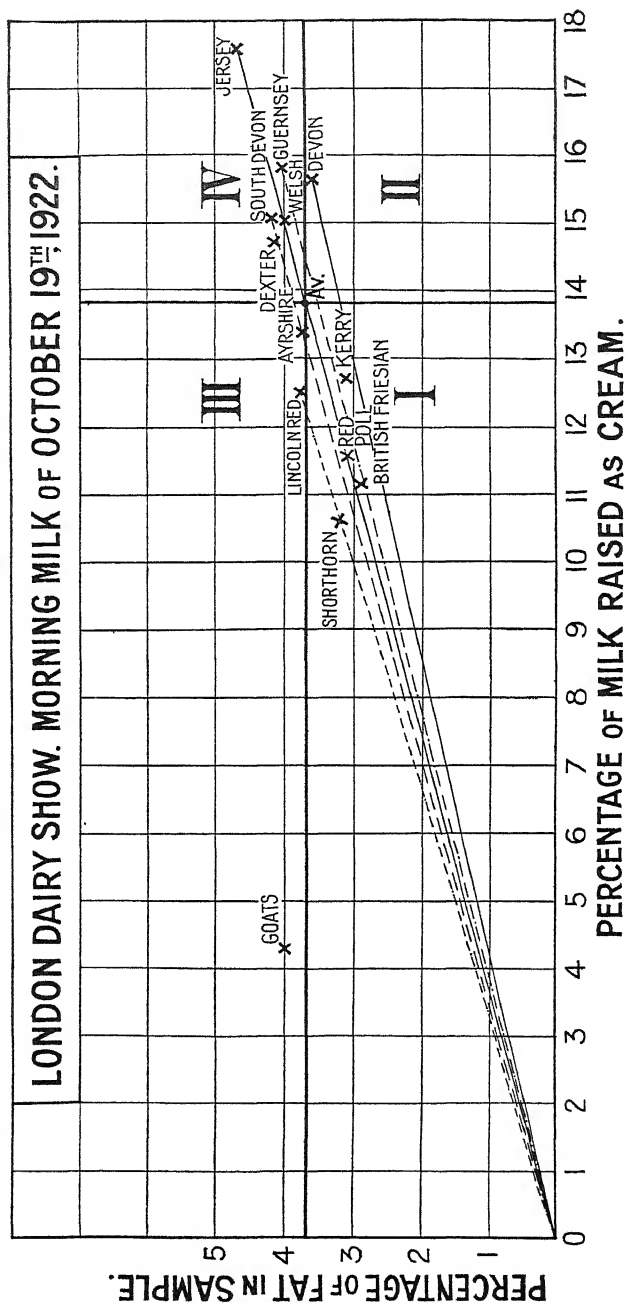
The two most desirable conditions for quality are, therefore, a normally high fat content in a homogenous mixture, *i.e.*, one in which the cream-rising power is low. From the graph it will be seen that the milks below the average cream-rising power and with fat percentages nearest to that required are those of the Ayrshire and Lincoln Red Shorthorn breeds, that of the Goats being almost ideal in this respect. It should be noted that in this experiment the total amount of cream was determined after sufficient time had elapsed for the majority of the fat globules to rise, but the actual rate of rising was not investigated. The latter would form a more useful test for cheese-making if the rate were calculated from measurements taken at frequent intervals, the milk being held meanwhile at, approximately, the renneting temperature. It would then probably be found that the rate of formation of the cream layer would be faster in the initial stages for the breeds in Groups II and IV, which give cream of a deeper colour than for those giving cream of a lighter colour in Groups I and III. This would indicate that the percentage of large fat globules is higher in the former and, from this point of view, it is suggested that homogenisation of the milk from breeds in Groups II and IV should prove advantageous where it is desired to produce a cheese of high quality and even richness throughout. Of the remainder, those indicated as most suitable for cheese-making are:—

- (i) Lincoln Red Shorthorn—High yield, lowest cream-rising power.
- (ii) Ayrshire—High yield, low cream-rising power.
- (iii) Shorthorn—Low yield, lowest cream-rising power.
- (iv) Red Poll—Low yield, average cream-rising power.
- (v) Kerry—Low yield, high cream-rising power.
- (vi) British Friesian—Very low yield, fairly high cream-rising power.

Value for Buttermaking.—The conditions of quality in milk for buttermaking are (1) a high fat content for yield and (2) large fat globules; to ensure the least loss of fat during the separation of cream, whether by setting or mechanical process; to minimise the loss of fat during churning; to obtain a good even grain. A deep colour is also a desirable feature of the cream.

The milks which most nearly satisfy these conditions are those with cream-rising powers above the average, and are found in Groups II and IV. Of these the Jersey, South Devon, Dexter, Guernsey, Welsh and Devon show the highest fat percentages in the order named, and the Devon, Guernsey, Welsh, and Jersey the greatest cream-rising power in the order named. When colour is

CREAM-RISING POWER IN THE MILK FROM DIFFERENT BREEDS.



also considered, those indicated as most suitable for butter-making are :—

- (i) Jersey—Highest yield, deep colour, good cream-rising power.
- (ii) Guernsey—High yield, deepest colour, very good cream-rising power.
- (iii) Devon—Average yield, deep colour, best cream-rising power.
- (iv) South Devon—High yield, deep colour, fairly good cream-rising power.
- (v) Welsh—High yield, deep colour, good cream-rising power.
- (vi) Dexter—High yield, fairly deep colour, fairly good cream-rising power.

Although above the average in cream-rising power, the milk of the Kerry appears to be less suitable owing to its low fat content and lighter colour.

Value for Milk Selling.—Apart from the fat content, the chief factors connected with quality which affect milk for sale, especially where sold in bottles, are a deep colour of cream and a good cream line on, or soon after, delivery. For these conditions it would appear that the breeds in Group IV would be the more suitable, but as the yields are usually lower in the case of those breeds showing a high average fat percentage, the best results would probably be obtained from a British Friesian, Red Poll, Shorthorn, Ayrshire or Lincoln Red herd, including a small proportion of Guernsey, Jersey or, possibly, Devon cows, where other conditions would permit. The remaining breeds—Kerry, Welsh, Dexter and South Devon—may be taken as producing milk showing a good cream line and, with the exception of the Kerry, of high fat percentage and good colour.

As it is desirable that a deep cream layer should form as soon as possible after delivery to the consumer, a further investigation of the comparative rate of formation of the cream layer at normal air temperatures should prove of greater economic interest than the depth of cream after the majority of the fat globules had risen.

Summary.—In making these observations it must be pointed out that, although conditions were arranged so as to be as nearly equal as possible for all breeds, the experiment represents a comparison of composite breed samples under the same conditions at the morning milking only so that all the fat percentages are low. It is only by a comparison of the same properties, on other occasions when the breeds are together, that further reliable data could be obtained.

Although the size of the fat globules and the way in which they aggregate are the chief factors determining the cream-rising power,

other influences should be noted, *i.e.*, the rate of development of acidity (due to bacterial content and temperature) which affects the rising of the smaller fat globules during the later stages. Better results might, therefore, be obtained if the milks were produced under the cleanest possible conditions. It would also be interesting if the data of depth and colour of cream were observed at intervals of say, 3 or 4 hours.

It should be borne in mind that the colour of the cream is only partly caused by the refraction of light due to the size of the fat globules, but is also caused by the amount of colouring matter taken up from the food. This may, to some extent, explain the deeper colour of the Dairy and Lincoln Red Shorthorn milk compared with the others showing a similar cream-rising power.

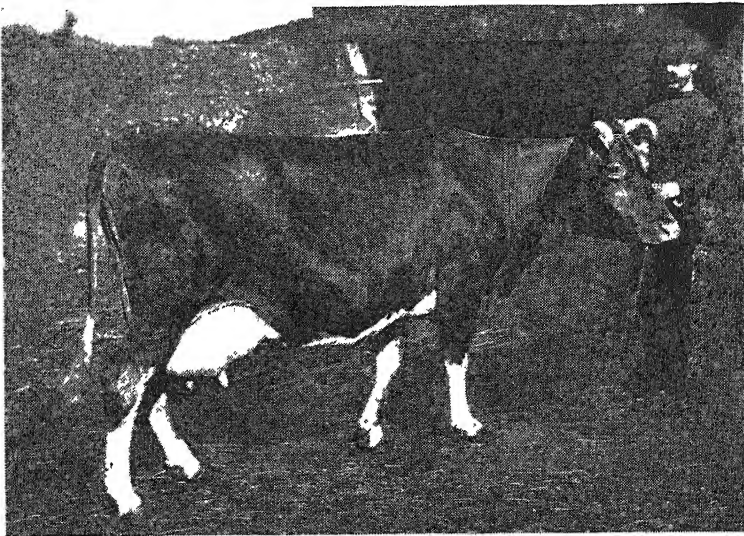
In other respects the results conform, as nearly as possible under the circumstances, to the usually supposed behaviour of the milks, from the several breeds, as regards their cream-rising properties.

GUERNSEY CATTLE.

By Mrs. JERVOISE.

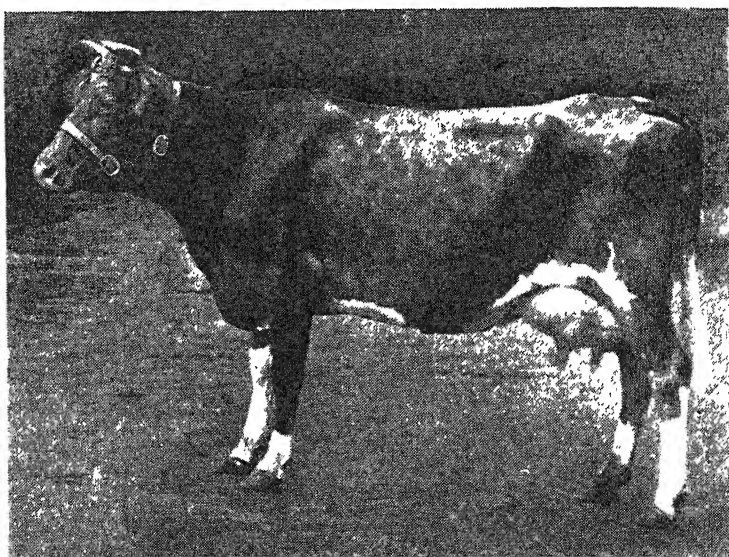
THE "Golden Butter Breed," as Guernsey cattle are now being designated in this country, has the great advantage of being of a type fixed far back in point of time and developed on definite lines by its improvers. Long before the Channel Islands adopted the policy of rigid exclusion of other breeds of cattle than those already flourishing there, the geographical situation of Jersey, Guernsey, Alderney and Sark gave breeders of cattle adequate protection against the intrusion of other breeds, while the agricultural conditions demanded the development of cattle suitable to the peculiar economic position prevailing. There is reliable evidence available that the Guernsey breed traces back to a home in Normandy and Brittany and the monasteries of the North Western Provinces of France. In the tenth century Robert, Duke of Normandy, sent monks to Guernsey with the mission of founding the Abbey of St. Michel du Val, and it is probable that they took with them Breton Cattle of the Froment de Leon Breed, which are still to be found in the dairying districts of France. The present appearance of the Froment de Leon Cattle is somewhat similar in size to the Jersey, but the colour and markings are more similar to those of the Guernsey of to-day. The monks, who may be described as the pioneers of agriculture of the middle ages, probably inaugurated some kind of trade in agricultural produce with the mainland, and there are records of the conveyance of cattle by monks who migrated from the neighbourhood of Cherbourg to Guernsey and Alderney to found abbeys on those islands. Those who went from the fishing village of Diellette doubtless took with them the large Norman brindle cattle from the rich agricultural district of Isigny, and one may fairly assume that from the Froment de Leon and the Norman cattle the Guernsey Breed has sprung, progress having been made towards perfection by the later policy of selection and careful breeding, with probably the admixture of fresh French blood immediately prior to the closing of the Channel Island ports. By that time something approaching uniformity had been achieved, and there were sufficiently far-seeing breeders to recognise the wisdom of retaining purity in a variety of dairy cattle that so fully responded.

On an island where the land is fertile, but extremely limited in extent and consequently high in market value it is not surprising that the development of the Guernsey has proceeded further, it may be thought, in the direction of economical production than in that of symmetry of conformation, and, indeed, the breed owes its present popularity in this and other countries largely, if not entirely, to the economical production of milk and butter, which is its characteristic. Yet the type is graceful and of very pleasing appearance and has become increasingly popular with owners of both small and large

**VALENTINE III.**7514 *p.s.* A.R. 75.

Winner of the King's Cup, 1915, and First Prize in 1914, 1915, 1917. —
 Advanced Register record, 15,477 lbs. Milk, 783 lbs. Butter-Fat; average 5.06 per cent. Butter-Fat.
 She is a great cow, and has done much to increase the reputation of the breed through her sons,
 and notably "Valentine's Honour of the Passee," now head of Mrs. Jervoise's herd.

herds on account of its great attractiveness. To the agricultural eye there can be few sights more pleasing than that of a herd of Guernseys grazing among the fresh green pastures of early summer. To the dairy farmer, a well-bred Guernsey conveys an impression of great milking capacity, for the head is handsome, of good shape, and terminated by a broad muzzle, indicating easy and liberal feeding capacity. The body is long, the barrel round, and the ribs deep, allowing plenty of room for milk making, while the udder is large and capacious. She gives the impression, even at first glance, that she is in need of but little encouragement to contribute generously to the pail, and her docility makes her a favourite either on the farm or in the park. In point of fact the Guernsey is one of the best-tempered milkers to be found, and the quiet friendliness of the bulls is a pleasing characteristic, and is probably another reason for the growing popularity of the breed. The limited area of the island makes it necessary to adopt the practice of tethering which is carried out also on the tiny holdings of Northern France and Western Flanders, mainly in order to ensure that the animal shall eat off the grass in the cleanest possible manner, and add directly to its fertility while she is feeding. The animals are tethered to a chain about 16 feet in length as a rule, and are often milked in the open. This tethering system naturally involves much handling, and the breed has become, so to speak, an



LADYSMAID II OF VILLE AU ROI.

20704

Winner of the following:—1919, Dairy Show, First Prize, Butter Test, open Class
 1920, Dairy Show, First Prize in Inspection Class and Stagenhoe Cup; First Prize, Milk Test.
 1921, Alresford Show, First for Dairy Cow, open to all breeds.

amiable one, ready to be on good terms with those with whom it is constantly associated.

But the claim of the Guernsey to the wide appreciation it is now receiving is based on more practical considerations still. It is pre-eminent as an economical producer of rich milk, for it is capable of giving as great a quantity of milk as some of the larger breeds of cattle, yet three Guernseys may thrive where only two heavier and larger-framed cows can do well. Breeders of Guernseys do not put forward the claim for the breed that it can compete in quantity of milk produced with the larger breeds commonly employed for dairy purposes, although output figures in the United States may often be favourably compared with those of Shorthorns and occasionally Friesians, but they do claim that for ready production of milk of the highest *quality*, the "fawn and white" is pre-eminent. There is, indeed, a prejudice in this country and on the island against forcing an output to astonish a public that is not too familiar with either the normal production of a cow or the means by which the yield of a good cow may be made spectacular. Too often have breeders found that the reproductive power of an animal is injured by the high feeding and the frequent milking necessary to produce extraordinary figures, and it has been generally recognised that the better policy with a good cow is to allow her to do her best under

the most normal conditions and to breed progeny similar to herself in productive excellence. Such a policy is not only the best for the cow, but for the breed. Yet it may be as well to remind those interested in the study of different dairy breeds that the Guernsey has proved her ability to produce two thousand gallons of milk in a lactation, the Advanced Register of the American Guernsey Cattle Club containing the names of three animals that have given this quantity.

It is the high quality of the Guernsey's milk that has put the breed in the front rank among dairy producers. As it comes from the cow it is of a remarkably deep colour and in summer the butter is often almost orange in hue, so that the term "Golden Butter Breed" is most appropriate, for where Guernseys are kept the dairy farmer has no need to add artificial colouring matter to his butter. The apparent richness of the milk is easily borne out by actual test, and it is not too much to say that the great majority of the breed will give almost double the butter-fat content required to pass the Government standard. Five per cent. for a herd is quite an average figure, individual tests frequently yielding 6 and 7 per cent. and over. At the London Dairy Show of 1919, a Guernsey cow gave 1 lb. 11½ ozs. of butter from 30 lbs. 6 ozs. of milk, winning the Butter Test prize against all breeds (incidentally the same cow was awarded 1st in Inspection Class, and 1st in Milk Test, in 1922). At the 1920 show, a Guernsey Cow gave 2 lbs. 12 ozs. from 55 lbs. of milk. In the same year a cow of another breed, which won the "Bledisloe" Cup gave only the same quantity of butter from 75 lbs. of milk, while another cow of the same breed as this cup-winner yielded only 8½ ozs. of butter from 43 lbs. of milk, and "The Times" calculated that it would require 8 gallons of the milk from this animal to produce 1 lb. of butter, which, reckoning the milk at the then price of 2s. 8d. per gallon, would cost about a guinea a pound. It is estimated that the average butter-fat production per lactation of Guernseys in full milk, is from 400 to 500 lbs., but there are very many that give 600, 700, and even up to 900 lbs. In the United States, there are half-a-dozen cows with a record of over 1,000 lbs. of butter-fat.

It may not be out of place here to give a few of the more recent records of Guernseys in England, on the Island, and in America.

Among the English records there are:—

	Milk.	Butter-fat.
	lbs.	lbs.
Itchen Polly (6 years) ...	14,728·75	727·60
Itchen Verbena (12 years) ...	13,673·75	693·25
Warbler (17 years) ...	14,912·75	678·53
Brittleware Lilac (— years) ...	11,590·25	625·87
Donnington Honeymoon (8 years)	12,517·75	625·83
Godolphin Pansy (— years) ...	12,549·50	621·20
Bosistow Dorcas (— years) ...	10,114·00	602·79

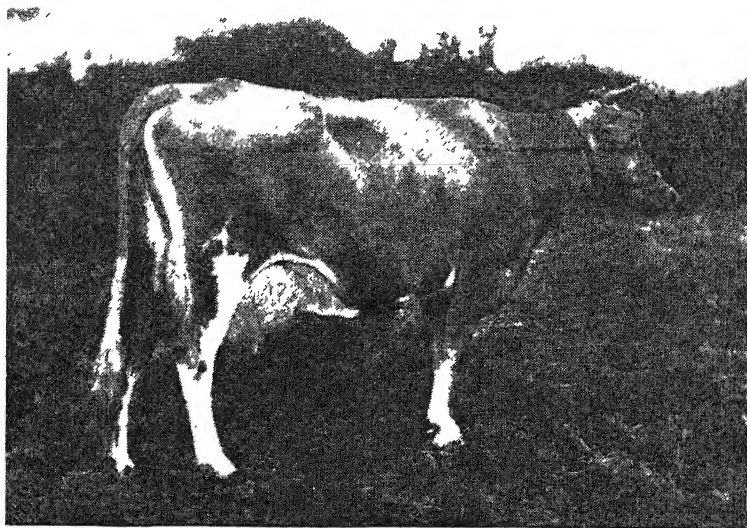
In passing, attention may be drawn to the splendid performance of the cow "Warbler" at the age of 17 years. The Guernsey is a long-lived animal and does well up to the end.

Noteworthy Island records until 1921, include :—

	Milk. lbs.	Butter-fat. lbs.
Primrose of Courtil du Ray ...	14,420·50	899·48
Valentine 3rd (5 years) ...	15,477·75	783·10
Ruettes Beauty 1st (9 years) ...	14,805·75	757·72
Fanny 3rd of Le Port (4 years) ...	12,647·68	745·89
Beauty of the Ruettes (6 years) ...	14,298·75	739·29
Queen 4th of the Blicqs (8 years) ...	13,978·00	738·30
Nellie 2nd of the Croisee (8 years) ...	13,157·00	724·84
Fascination des Caches (7 years) ...	12,962·25	720·98
Flora de les Annevilles (8 years) ...	13,172·25	714·73
Sylph's Pride 3rd (9 years) ...	15,965·50	711·42
Beauty 3rd des Martins (6 years) ...	14,171·25	709·58
Braye Duchesse (8 years) ...	16,340·25	708·58
Sweet Briar of Bickleigh (4 years) ...	12,944·75	698·54
Flossie 3rd La Croisee (6 years) ...	13,662·00	692·22
Daisy of Bleimont (6 years) ...	12,141·06	676·81
Daisy of the Friquet (7 years) ...	12,512·50	662·98
Flora 4th of les Annevilles (3 years) ...	13,823·25	651·49
Cyrene d'Or (5 years) ...	11,438·50	637·70
La Fleur du Jardin 12th (12 years) ...	13,831·75	625·11
Blanchette 2nd (8 years) ...	13,003·19	621·58
Wide Horn (14 years) ...	13,079·00	621·44
Sequel's Bountiful (5 years) ...	11,963·25	613·92
Lady Blanche 2nd of Bickleigh (5 yrs.)	12,823·00	613·66
Florrie of the Pailloterie 4th (5 years)	10,403·60	609·69
Betsy 5th of the Ponchez (5 years) ...	11,288·75	608·95
Minnie of Bickleigh (8 years) ...	12,700·25	605·63
Brickfield Beauty 2nd (8 years) ...	10,913·69	602·59
Medea of Park Farm (10 years) ...	11,650·50	600·60

and the following are the twelve best records out of 98 cows entered for the competition ending 31st July, 1922, which show that the Guernsey is still holding its reputation in the dairy world :—

	Milk. lbs.	Butter-fat. lbs.
Primrose 2nd of Courtil du Ray ...	14,198·00	762·48
Belladonna Star ...	14,224·25	721·99
May Rose Pearl of the Spurs ...	12,471·50	714·19
Ursula of Country Hospital ...	11,818·75	650·35
Penrose of Country Hospital ...	10,898·25	595·00
Cheminante of Meadow View ...	14,994·75	703·45
Primrose 3rd of Courtil du Ray ...	10,375·00	629·39
Queen 3rd des Ruettes ...	12,857·50	710·29
Les Dunes Agnes ...	11,679·75	609·84
Secret of Dixcart ...	10,799·25	609·47
Excelda of Truchots ...	10,968·00	577·32
Favourite of Woodlands ...	11,376·50	598·95

**PRIMROSE OF COURTIL DU RAY.**

5082 f.s. A.R. 390.

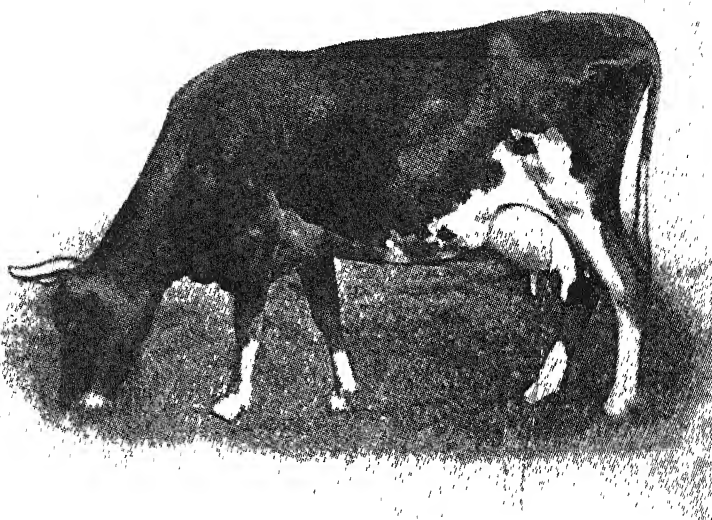
Advanced Register record at 2 years, 122 days :—3853 lbs. Milk, 516·18 lbs. Butter-Fat ; average, 5·83 per cent. Butter-Fat.

At 6 years old :—14,420·50 lbs. Milk, 899·43 lbs. Butter-Fat ; average, 6·24 per cent. Butter-Fat

The best official records of Guernseys in America, are as follows :—

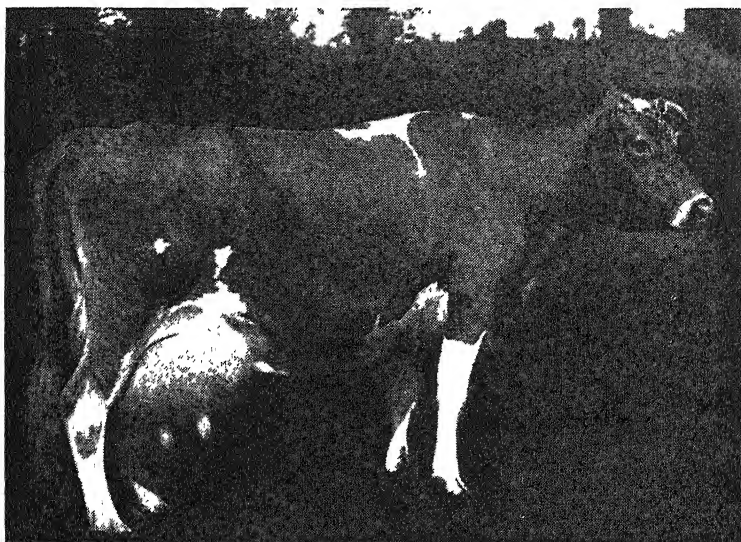
	Milk.	Butter-fat.
	lbs.	lbs.
Countess Prue, 43,785, A. R. 6909 ...	18,626·90	1,103·28
Murne Cowan, 19,597, A. R. 1906 ...	24,008·00	1,098·18
May Rilma, 22761, A. R. 1726 ...	19,673·00	1,073·41
Nella Jay 4th, 38233, A. R. 3194 ...	20,709·90	1,019·25
Langwater Nancy, 29,743, A. R. 1826 ...	18,783·50	1,011·66
Langwater Hope, 27946, A.R. 1978 ...	19,882·00	1,003·17
Yeksa's Tops of Gold's Fannie, 22,362, A. R. 2394 ...	19,794·90	981·53
My Fancy of Falcon's Flight, 43,999, A. R. 7296 ...	18,214·70	979·11
Spotswood Daisy Pearl, 17696, A. R. 790 ...	18,602·80	957·38
Julie of the Chene, 30460, A. R. 2752...	17,661·00	953·53

When the high butter-fat and rich protein content of Guernsey milk are taken into account it is not surprising that doctors are loud in their praise of its value as a food for invalids and delicate children. It has the merit of being easily digested, and during the war, one

**BRAYE DUCHESSE.**7172 *p.s.* A.R. 210.

Advanced Register record at 8 years, 42 days :—16,340·25 lbs. Milk, 708·58 lbs. Butter-Fat ;
average, 4·34 per cent. Butter-Fat.

frequently saw the beneficial effects of Guernsey milk on elderly folk and others who suffered through shortage of other food commodities. Owners of Guernseys felt that they had a grievance in the fact that, while they were producing an article with twice the nutrient value of ordinary milk, they could obtain no more for it than milk that only just passed the Government test. Even to-day, the Guernsey is called in to help the dairy farmer to raise the percentage of his output from other cattle and to prevent the risk of prosecution for selling milk below the legal standard. Gradually, however, the public is beginning to realise that there are varying degrees of quality in milk as in most other commodities, but it is a tardy process to secure a corresponding increase in price proportionate to the higher value of the Guernsey product. Proposals to grade milk simply in accordance with its cleanness and bacterial content merely accentuate the existing disadvantage of Guernsey breeders who, while granting the importance of clean milk, ask for the proper reward for the producer of the richer article. However, Guernsey breeders in England have shown considerable enterprise during the last few years and are not likely to be left behind now, nor will England remain the only country in the world where it is the exception instead of the rule that the price is regulated by the percentage of butter-fat.

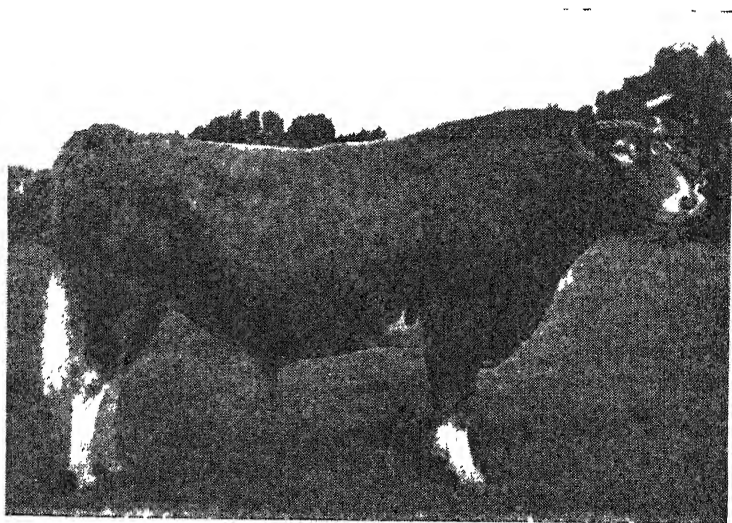


LA FLEUR DU JARDIN XII.

5619 p.s. A.R. 281.

Advanced Register record :—13,831 lbs. Milk, 625·11 lbs. Butter-Fat at 12½ years old.
 Winner of King's Cup, 1910 First Prize and Reserve Champion, 1912 and 1913. First Prize.
 Peer Cup, 1914. Second Prize and Reserve Champion, 1915. First Prize and Challenge Cup,
 1915. First Prize, Champion Cup, two Challenge Cups, and Douglas Cup, 1916 First Prize,
 Champion Cup, and two Challenge Cups, 1917. Blythswood Trophy, Champion Cup, two
 Challenge Cups, and Cow Progeny Prize, 1918. Blythswood Trophy, Champion Cup, and
 Challenge Cup, 1919.

The wider appreciation of the Guernsey in this country has led to a distinct improvement in the standard of dairy cattle generally kept, for it was the English Guernsey Cattle Society which introduced the system of official milk recording, a system which, thanks to the advocacy of this and other journals, has now been taken up in all parts of the country. Other Societies followed the example of the English Guernsey Cattle Society in the institution of regular milk weighing by their Members, and during recent years the Government scheme has been established, which promises to co-ordinate efforts in this direction. At present, however, the testing for butter-fat is regarded as of such supreme importance by Guernsey breeders that the English Guernsey Cattle Society, while falling in with the Government scheme so far as milk recording is concerned, has made arrangements for the continuance of its official analysis of its members' milk, and tests about a hundred samples a day at its laboratory at 12, Hanover Square. The English Guernsey Cattle Society was for some years the only Society to include testing as part of its operations, and it has been decided to continue the practice until the Government, whose predecessors some years ago insisted, in the interests of the food

**HONORIA'S SEQUEL II.**2186 *p.s.*

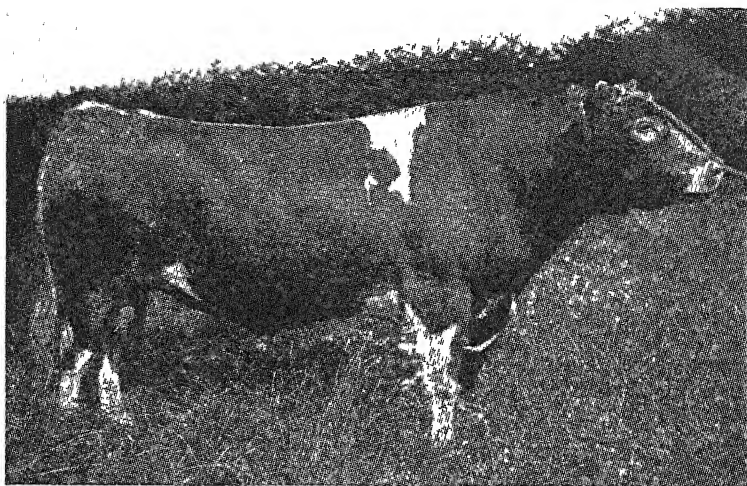
Awarded King's Cup and Peer's Cup on three occasions with different progeny. His dam, "Sequel's Honoria," held an official record of 12,428 lbs. Milk, 540·82 lbs. Butter-Fat.

consumers, in creating a legal standard for the sale of milk, should, in furtherance of their policy of fostering the milk (quantity) recording, graft on to it a system by which to grade up the quality as well as the quantity of milk produced by the herds of the country.

The Guernsey is remarkably hardy and adaptable to considerable variations of temperature and weather. The late Mr. F. S. Peer, who was engaged for over twenty years in the exportation to America of all kinds of European cattle, said: "I am prepared to say that no other breed of dairy cattle, including Holsteins from Holland, and Brown Swiss from Switzerland, has stood the transplanting better than Guernseys." They are a stout, hardy race, and not easily upset by changed surroundings. They acclimatise easily and invariably do far better at the pail away from home than in their native land. The breed holds the world's record for production of the greatest amount of butter at the least cost." In-calf heifers and young stock of a year old and upwards may safely winter in the open in the milder regions of England, with access to shelter at night in the severer weather.

The Guernsey is very free from tuberculosis and is likely to become more so while breeders habitually test their herds annually, eliminating the re-actors, and buy and sell subject to test, which give confidence, more particularly to new breeders.

It is not claimed that the Guernsey is a dual-purpose animal, but at the same time, bull calves sell well in the markets, and in the Island,



GOVERNOR OF THE CHENE.

1297 *p s.*

One of the most celebrated sires of the breed. Amongst other daughters he sired "La Fleur du Jardin 12th." His prize-winning record is equal to any in the breed, and he sired a very large number of A.R. cows.

in 1921, the first-prize steer, under four years old, at the Christmas Show weighed 1,597 lbs., while the first-prize ox, over four years, weighed 1,999 lbs.

The following experiment on rats, pointing out the importance of butter-fat, is of especial interest in connection with Guernseys, owing to their wonderful records in this direction. It was described by Dr. E. V. McCollum, of John Hopkins' University, U.S.A., to the National Dairy Conference in 1918, and demonstrates the importance of that unknown substance furnished by butter-fat to all animal life. In the absence of this constituent it was noticed that the tissue surrounding the eyes swelled up and within three or four days, and the animal would have been blinded and eventually have died if the deficiency had not been supplied. A similar case in human beings was described in Japan in 1906, when there were about 400 children affected who, owing to the drought, were living on a diet of leaves, seeds, roots, tubers, and meat; in other words, they did not take dairy products.

Some breeders make a small quantity of excellent cheese, and experiments in this line have been commenced, the Royal Agricultural Society holding an inter-breed test some years ago in the making of Wensley Dale, but scientific results are not yet available.

A few particulars of the activities of the English Guernsey Cattle Society may interest your readers at home and abroad. As the

pioneer Society in recording the milk from its members' cows, it has met with considerable success. The system began in 1912, and in 1922, eighty herds were under test. The rule is strictly enforced that no animal is eligible for inclusion in the official milk records that is not safely in calf within five months of her last calving. The year 1922 sees the commencement of the Advanced Register of Bulls, for which the qualification is that the Bull should have had three daughters which have qualified in the Milk Records of either the English, the American (double-letter class), or the Guernsey Society. Bulls can be entered in the list when the dam, or dam's dam, and sire's dam, have both been accepted in the Milk Records of the Societies, but would not be entitled to the letters "A. R.", until they had qualified in accordance with the above standard of requirements.

It is interesting to note that while in the year 1910, 410 cows and heifer calves and 100 bulls were registered for entry in that year's herd book, in 1922, the numbers were, respectively, about 1,200 cows and 300 bulls. The membership of the Society in 1910 was 124, and in 1922, over 500.

The "Show Stand" of the Golden Butte Breed at the Royal, Royal Counties, and Dairy Show, has been most attractive in appearance and has come in for a full share of attention at the Shows where, during the last two years, it has been open under the most assiduous attention of Major Edward Seymour (the President for 1923), Lady Blanche Seymour, and Mrs. Howard Palmer.

The effect of the prevalence of Foot and Mouth disease in England has been disastrous, as a brisk trade acts as a healthy stimulus to breeders of all kinds of live stock, but, fortunately, the merits of the Guernsey are being more appreciated in England year by year, with the result that the Home Trade has steadily improved as shown by the increasing membership, and the result of Public Sales. Mrs. Pratt Barlow recently sold 24 head at an average of £102, and on the occasion of the dispersal of the herd of the late Duchess of Albany, 35 animals averaged £113.

The Society's Sale in the spring at Reading is now an annual event, where breeders from all parts of England are able to send their surplus stock, and buyers may be sure of obtaining good animals.

Whether or not it is due to their descent from the hardy Froment de Leon Breed, Guernseys certainly have the quality of hardiness, shown by the fact that they thrive in the colder climates of Yorkshire and Cheshire as they do on the high lying (600 to 800 feet above sea level) ground of the south of England.

DAIRY FARMING IN THE NETHERLANDS.

BY JAMES H. MOORHOUSE.

With special reference to Dutch methods which are worthy of consideration from the point of view of their adoption in this country.

TO-DAY there is a growing realisation in the minds of British farmers that the mainstay of agriculture in this country is Dairying, and that this is likely to be increasingly so in the future. Sheep farmers may point to the high prices mutton and lamb are making, but these are bound to fall sooner or later with the quality of imported frozen meat improving as it is. Corn growers can hardly point to very rosy prospects, indeed their corn has little chance of competing with the produce of a system of land robbery in the West. Pig breeders may well claim a future for themselves as they have some of the best pigs in the world and a market at their doors, but if they would combine their business with that of the dairyman, for the better utilisation of dairy bye-products, they would aid each other and both might advance successfully together. Yes, progress in dairying is what we must strive after, and no one can say that we have already attained perfection in that line.

With thoughts somewhat similar to these, I determined last Easter to visit the land which—with all due respect to my fellow-countrymen—I have always regarded as the home of dairying—namely, Holland.

As the result of that visit the following notes have been written.

There are only three breeds of cattle in the Netherlands—firstly, the black and white or Friesian type; secondly, the Groningen black white-head; and thirdly, the red and white Rhine type. Of the total the Friesian type probably constitutes two-thirds.

The red and white breed are found in the south-east of the country towards Germany and are associated with a very poor type of farming. The land is dry and sandy, the herbage scant, and the buildings which house the cattle—and incidentally house also the farmer and his family—are of a somewhat primitive type. The cattle, however, seem able to suit themselves to these poor conditions, and are a very useful dual-purpose breed. They are not deep milkers, nor is the milk of specially good quality, averaging perhaps 3·5 per cent. fat, but still their milking properties have not been entirely neglected. They are small neat animals, deep through the heart, and thick-fleshed—in this respect they resemble closely our North Devon breed.

Next we come to the Groningen black white-heads, which are found almost exclusively in the county of Groningen in the north-east of the country. They are not good milkers, though some of them have been improved recently in this respect. I stopped some time with a Groningen breeder and he told me that they gave nearly as much, and better quality, milk than the Friesians, but this fact I was never able to verify. I agreed with him that they did not give as much milk as the Friesians, but, from records that I saw, came to the conclusion that their milk was poorer rather than richer in quality. The Groningens are, however, a very good beef breed, and are big broad well-fleshed animals. They are of a peculiar colour, being mainly black, but with a white face spectaclled with black, and white underline, tail-tip, and socks.

The third breed is the black and white found in Friesland, in county Holland, and dotted about in other parts of the Netherlands. These cattle are too well known in this country to need a description; but, though I have not heard it stated elsewhere, I thought they were a considerably more beefy type than those seen in England. This is only to be expected as the Dutch pay more attention to beef properties than we do with our dairy breeds. In Friesland I was told that their cattle were superior to those found elsewhere in the Netherlands. In the Hague I was told that the black and white cattle were about the same all over the country, and I was inclined to agree with this latter statement. The Friesian people claim superior constitution for their cattle, but they base their judgment of this somewhat mysterious constitution largely on the question of heart girth, and some of the deepest, most healthy and hardy looking cattle that I saw in the Netherland were in the Beemster Polder in North Holland. In some of the markets, where the second-rate cattle are to be found I saw black and whites with badly-shaped udders, narrow across the quarters, and inclined to fall off at the tail; but there did not seem to be the same tendency towards poor heart girth that I have noticed amongst Friesians in this country. The black and whites are undoubtedly the best milkers in the Netherlands—many give between 800 and 1,000 gallons of 3·6 per cent. fat milk in the year. Certainly there are some that give milk with a low percentage of fat, even below 3 per cent in odd cases; but the herdbooks are doing their best to weed out such animals, and the black and whites as a whole have not the same reputation for production of poor milk that they have in this country.

The management of cattle in different parts of the Netherlands varies considerably. The red and whites seem to thrive, like our Sussex breed, largely on poor quality hay and grass. In winter, in nine cases out of ten, they get nothing but hay, as they do not calve till spring, and so will not pay for winter caking. Some black and whites also are found in the south-east, but they do not stand the rough feeding nearly as well as the red and whites, and are generally stunted in growth.

In Groningen, especially near the coast, the country is almost entirely arable, only sufficient grass being set aside for summer grazing. During the winter the cows live on the produce of ploughland, which produce, however, differs considerably from the sort we feed in this country. There is a large demand for straw for the cardboard factories, also a small but insistent demand from Friesland where no corn is grown; and in consequence straw is worth £2-£2 10s. a ton on the farm and so as little as possible is used for feeding and littering. Hay also is expensive to produce as the land is heavily rented, and what little is grown is generally given to the horses. Clover and other leguminous crops are grown in this part for seed, and the clover straw together with pea and oat straw and the best of the bean haulm form the roughage that the cows generally receive. The district is a good one for sugar-beet growing, owing to the deep rich soil and the water transport available, and the tops and necks of the beet are clamped and made into silage for the cows for winter. As regards concentrated food, a quantity of linseed is grown and this is thrashed, usually by hand, during the winter and sent to the local wind-power mills to have the oil extracted. The linseed cake is bought back by the farmers, and this together with oats and beans forms the chief concentrated food, the more modern cakes and meals not yet having become popular amongst the farmers. We must remember, however, that there is not the same demand for winter produced milk in Holland as there is in this country, and so not nearly so much concentrated food is needed.

In Friesland nearly all the land was originally marsh or below the level of the sea, but it has been drained and laid down to permanent grass. The water table being so near the surface, a good crop of grass can be relied upon in nineteen out of twenty summers and with its inherent richness much of the land would be used for bullock fattening were it in this country. The rent of such land is very high—often about £5 per acre—but two acres per cow is considered an ample allowance for the year. The calves are dropped in spring, generally in March or April, and the cows are separated immediately from their calves and go out to grass as soon as possible. While on the grass they receive no additional concentrates. In October they are taken in for the winter and never go out again till next spring. Their food for the winter consists almost entirely of good quality hay and linseed cake. Straw is used as sparingly as possible for litter as all has to be bought, generally from some considerable distance away. The farms in this district are seldom more than 50 acres in size. On such a farm 18 or 20 cows, young heifer stock, a horse, and perhaps 3 or 4 sheep are kept. The work is generally all done by the farmer and his family, and by economical methods a good living is made in spite of the large rent that has to be paid.

In county Holland the farming is more of a mixed type and the system of feeding somewhat similar to that practised in this country.

On some farms mangolds are grown for the cows, but more often sugar-beet top silage forms the succulent part of the winter ration.

Cows are never allowed to suckle their calves for more than three or four days at the outside, and in most cases the calves are taken away from their mothers at birth. The calf receives the colostrum and then gets new milk three times a day till it is about three weeks old. The milk is gradually diluted with skimmed milk and a little linseed meal added till by the age of five weeks it is getting no new milk. At this stage—about the middle of May, as the calves are mostly dropped at the end of March or early in April—it goes out to grass for the summer, but still gets a drink of whey and linseed cake meal or skimmed milk and linseed meal twice a day. On many farms the calves get no cow's milk after the colostrum is finished, but instead sheep's milk. It may sound extraordinary to an Englishman, but some of the Friesian ewes that have been bred for generations for milk production will give as much as a gallon of milk a day. A farmer often keeps three or four of these good milking ewes and one of his children has the job of milking them—as it is suited to small hands—and feeding the calves.

Bull calves that are not required for breeding purposes are fattened off as veal at about three months old. This Dutch veal is a great speciality. The calves are fed entirely on milk, often being muzzled to prevent them from eating their litter. They produce about 1 lb. live weight per 1 gallon of milk or 1 lb. dead weight per 2 gallons of milk. None of the calves are kept on as steers, as the land is too expensive for this type of farming to pay. The Dutchman does not know what prime steer beef tastes like, but is content with three months old veal and cow and bull beef.

Heifer calves are taken in for the winter in October and tied up with the cows. They are fed generously to encourage their growth and receive linseed cake and good hay. Next summer they are bulled in July or August so that they will calve down the following spring, slightly after the rest of the cows, but when only two years old. I was rather surprised at this procedure and queried whether it did not inhibit their growth and future development as milk producers; but was told that they would not pay for keeping three years before calving and that if well done they did not suffer at all from such early breeding—and indeed I saw no signs of badly-grown cows except amongst the black and whites of the south-east district.

No account of Dutch cattle breeding would be complete without some reference to the herdbook and system of recording of dairy cattle. There are two herdbook institutions in existence in Holland. The older established one is at Leeuwarden and registers the black and white cattle in Friesland only. The other is at the Hague and is an amalgamation of the herdbooks of the three breeds found in Holland, with the exception of the black and whites in Friesland. It seems a pity that these two bodies cannot unite. Such a suggestion

would be welcomed at the Hague, but the Friesian people are unwilling—being older established they have the better reputation abroad and, quite naturally, are unwilling to part with it for the benefit of their neighbours. The Friesians also claim to have the better cattle; but, as I have already said, I do not consider that is correct.

An outstanding difference in the system of milk-recording in Holland and in this country is that here the lactation period is taken as being from year to year, while in Holland it is taken from calf to calf. At the Hague there are three grades in the herdbook:—*the register of cattle of good appearance but unknown parentage; the herdbook proper for cattle whose ancestry is known and approved; and the register of merit into which the best animals are placed. There are also numerous local societies which feed the main herdbook. For entry into the herdbook mere pedigree is not sufficient as in this country. Each animal must pass an inspection and gain a certain percentage of points, awarded solely according to the animal's appearance. Notice of birth of a calf must be sent with a description and sketch of the calf to the herdbook within 72 hours of its birth or the entry will not be made—this is with the object of preventing substitution of calves. Milk testing both as regards quantity and quality is done by an official inspector every two or three weeks so that there can be no untrue entries as regards this item. The whole system struck me as being particularly efficient. It is worthy of notice that so much stress is laid upon the outward appearance and beef properties of a breed that we are sometimes apt to look upon as a mere milking machine.

In Friesland the herdbook system seems to be equally efficient. They claim that it is even more so, though where the essential difference lies I could not make out. The same scrupulous care is taken to prevent the substitution of calves. They are examined twice and have to obtain a certain percentage of marks before they are entered in the herdbook. The herdbook here is not split into three divisions, but all the cattle are entered in the same book, which is not closed—the claim being that all cattle in Friesland are pure bred, no outside blood having been introduced for so many generations, so that all have a right of entry if good enough physically. The system of scoring at the inspection is interesting in that only 6 per cent. goes to the points considered indications of a good milker, 25 per cent. to general appearance, and about 10 per cent each to spring of ribs, depth through heart, and width of hook and pin bones.

There is also a very efficient system of bull registration. Yearling bulls of good milking pedigree and satisfactory appearance are bought by small co-operative societies consisting of a few farmers and used by these men on their cows for a year, at the end of which time they are sold as bull beef. There is no personal ownership of "scrub"

* Ref. Pamphlet: The Netherland Herdbook Association

bulls that we find so common in certain parts of this country. The extra cost of a good bull is not excessive when divided amongst several farmers. Any very promising bulls are kept till they are four years old, by which time the performances at the pail of the heifer calves got by these bulls and of the calves' mothers can be compared. By this means it can be seen exactly what influence a bull has had on the stock got by him. If these results are particularly satisfactory the bull is made a *Preferent* by the herdbook association and then is kept on for breeding purposes as long as he is able, and is only used on the best cows with a view to breeding other first-rate bulls. That the results according to the performance of the heifers got by the bull must be very satisfactory can be seen by the fact that only 25 or 30 bulls have been made *Preferent* so far.

A large proportion of milk from Dutch cows is used for commercial purposes—for cheese or butter-making or for condensing or drying. For these purposes it is important, from the financial standpoint, that the milk should contain a high percentage of fat and protein. Many of the co-operative dairies in Holland buy the milk according to its fat percentage. This brings home to the farmer the importance of breeding cows that will give rich milk. The herdbooks have also realised this point and now one never sees a milk record published without the average percentage of fat in the milk given along with it. This breeding for quality of milk has already effected a considerable change, and cows giving milk containing less than three per cent. fat have been practically eliminated.

A great deal of the success of the Dutch farmer is due to the co-operative dairies. Transport by canal is very easy and cheap in Holland. This means that the dairies and factories can be spaced further apart, and so be larger and capable of dealing with milk in a more efficient manner. It is not within the scope of this paper to enter into the advantages and disadvantages of co-operation, but it is obvious that, in a country exporting dairy produce as Holland does, a co-operative factory is in a much better position to take advantage of changes in the market than is an individual farmer, perhaps hampered by lack of capital and lack of knowledge of marketing.

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The above is a brief summary of the conditions of dairy farming in Holland at the present day, and we must now see what is to be learnt from it.

It must be clearly understood at the outset that there is an essential difference between the character of the Dutchman and of the Englishman. He is much more painstaking than we are, and willing to work longer hours, and his wife and children are willing to work for no personal gain but the good of the family. It is

impossible, I believe, to change this national outlook of ours on work, so we must look to other things.

Some of the Dutchman's methods of feeding are worthy of our consideration. In the Fen district of Lincolnshire and Cambridge-shire for instance where sugar-beet production is likely to increase, it is quite possible that beet tops and necks might be made into useful silage for dairy cows instead of mangolds being grown—at present I believe the tops are just ploughed in in the same way that mangolds tops are. Linseed is also a crop that does well in this country and might be grown more by dairy farmers.

As regards methods of management I see no reason why our heifers should not be bred from nine months or a year earlier than they are at present, provided of course that they are well done to during their first two years and never allowed to lose their calf flesh—I do not mean of course that they should be kept fat when young, but they must never be allowed to go back. I would not advocate the slaughtering of bull calves as three months old veal, but the happy medium between their system and ours might be struck, and “baby beef” produced—that, however, is a very controversial matter.

Co-operation might be gone in for more in this country than it is, but I do not think it could ever be developed to the same extent as in Holland. There nearly all trade in milk is export and co-operation is useful for securing the market, but here the market is in most cases at our door, and any attempt at an extensive system of co-operation would have too many backsliders to be really successful. In cheese districts, however, co-operative factories would be very beneficial, but of course we have many of these already. In Ayrshire, for instance, three-quarters of the cheese is made in co-operative factories.

The greatest thing, I think, that we can learn from Holland is their herdbook system. This is much more efficient than ours, and, what is more important still, is taken advantage of by a vastly larger proportion of farmers. Milk recording also, both for quantity and quality, should be gone in for to a far greater extent; and, linked with this, certificates given to the best bulls from the point of view of milk and beef production. With such a system we might hope to raise the standard of the average farmer's herd considerably.

THE HOME COUNTIES DAIRY CONFERENCE.

By W. E. MANCHESTER.

AFTER an interval of eight years, due to war and post-war conditions, the Association resumed its series of Annual Conferences and Excursions by holding a gathering at Reading from July 10th to July 15th. The arrangements were in the hands of Mr. S. R. Whitley, Chairman of the Conference Committee, and a programme of outstanding interest was provided. The choice of Reading as a centre could not have been more happy. The town itself is replete with historical associations such as few cities in the kingdom possess; it is famous for its biscuits and its seeds, for its municipal enterprise, and the public spirit of its leading citizens. But to the members of the Conference its especial interest was the unique position it occupies as an educational centre, more particularly in relation to agriculture and dairying.

The appropriateness of the venue was still further emphasised by the fact that the visit coincided with the introduction of Parliamentary measures dealing with the betterment of the milk supply from the point of view of cleanliness and bacterial purity, for in no town in the kingdom has such advance been made in the production and sale of milk of the standard implied by the description of "Grade A" as in Reading. That this is due to the influence of the National Institute for Research in Dairying there can be no doubt, and at a time when attention was so much directed to this aspect of the milk supply it was peculiarly fitting that the Conference should be held in surroundings so closely associated with the question.

It was not the first time that the Association had visited Reading, for in 1902, the Conference, under the Chairmanship of the late Sir George Barham, made its headquarters there. Several members who were present on that occasion were among those taking part in this Conference and it was of great interest to note the progress which had been made since those days. The College had not then removed to its present commodious site and the British Dairy Institute was inadequately housed. Nevertheless, the latter carried on a splendid educational work under the direction of the late Mr. Miles Benson, and many of those who have since made their mark in the world of dairying received their training there.

Among those taking part in the Conference were: The Viscount Elveden, M.P. (President of the Association) and Lady Elveden; Mr. and Mrs. G. Titus Barham, Sudbury, Middlesex;

Mr. W. C. Brown, Appleby ; Mr. J. H. Brown, Tarporley ; Mr. A. E. Bond, Mr. E. H. Berriman, Messrs. G. B. M. and S. J. M. Brown, Heacham ; Mr. J. A. Brown, Bristol ; Miss Bolam, Reading ; Miss Iris L. Bull, Clare, Suffolk ; Mr. Frank Bryan, London ; Mr. F. Brindley, Congleton ; Mr. Felix Bourne, Chatham ; Mr. A. J. Clare, Wells ; Mr. W. Cooper, Trengwainton ; Mr. W. M. Childs, Reading ; Miss E. M. Dawson, Shrewsbury ; Miss J. Forster, Worleston ; Capt. and Mrs. J. Golding, Reading ; Mr. and Mrs. J. Hamblin, Sampford Peverell ; Miss Annie Hall, Reading ; Mr. and Mrs. T. Hawes, Bucks ; Miss G. B. Hawes, Surbiton ; Messrs. W. and L. Hardie, St. Leonards-on-Sea ; Mrs. and Miss Kendall and Mr. R. G. Kendall, Biggleswade ; Mr. J. R. Keble, J.P., Manningtree ; Mr. E. J. Keeble, J.P., Harwich ; Mr. and Mrs. Lockett, Whitechurch ; Mr. W. Langridge, Crawley ; Mr. Robert Long, Sheffield ; Mr. Clement Lewis, Farnborough ; Mr. W. E. Manchester, J.P., London ; Mr. G. Mutimer, Hapton, Norwich ; Miss Hilda Maciver, Edinburgh ; Miss A. D. McKerrow, Garforth ; Mr. and Mrs. Jas. Macintosh, Reading ; Mr. W. and Miss M. L. Nisbet, Glasgow ; Mr. W. H. Norrish, Sampford Peverell ; Prof. H. A. D. Neville, Reading ; Miss Winifred Nicholas, Liskeard ; Admiral Sir Richard and Lady Phillimore, Hants ; Miss E. Pettyfer, Reading ; Mr. Peter Perry, Malton ; Mr. and Mrs. Paterson, Lady Pinney, Dorset ; Major and Mrs. Pearson, Reading ; Mrs. F. Reeves, Clevedon ; Mr. G. W. Rackham, Hethel, Norwich ; Mr. and Mrs. B. Ravenscroft, Mr. T. R. Stockdale, Melton Mowbray ; Miss Jessie Stubbs, Preston ; Mr. Jesse Skinner, Brigg ; Mr. G. Spilman, Brigg ; Mr. L. E. Shirley, Bletchley ; Mr. W. Sweetman, Sandhurst ; Mr. E. P. F. Sutton, Reading ; Mr. F. H. Storr, Bath and West and Southern Counties Society ; Mr. and Mrs. J. W. Towler, Farsley ; Mr. and Mrs. J. Tickle, Chatham ; Mr. and Mrs. A. Todd, Reading ; Capt. and Mrs. S. Villar, Amersham ; Mr. R. J. and Miss Venner, Reading ; Mr. and Mrs. Vernon, Market Drayton ; Mr. and Mrs. Whitley, Reading ; Dr. and Mrs. Stenhouse Williams, Reading ; Mr. F. H. Wright, Reading ; Mr. and Mrs. Wynch, Camberley ; Mr. J. D. Williams, Reading ; Mr. F. Wilkinson, Burton-on-Trent ; Mr. S. Wallace, Herts ; Mr. E. G. F. Walker, Chew Stoke ; Mr. G. P. Williams, Cornwall ; Mr. F. J. Wigmore, Oxford.

By arrangement with the authorities of University College, accommodation was provided for the ladies of the party at St. Andrew's Hall, while the gentlemen were quartered at St. Patrick's Hall. To many it was a reminder of old student days, to others an interesting insight into college life.

CIVIC RECEPTION AT THE TOWN HALL.

The members assembled on the evening of Monday, July 10th, and, having dined at their respective halls, proceeded to the Town Hall, where a reception was held by the Mayor, Councillor W. Roland Howell, F.R.I.B.A.

His worship, in extending a cordial welcome to the visitors, expressed his pleasure that Reading had been selected for the gathering. As a municipality they were deeply interested in the industry represented by the Conference as it so largely affected the health of the community. He proceeded to give some statistics with regard to the town and said they had much to be proud of in their low death-rate, but pride of place was to be given to the continuous reduction in the infantile mortality rate which had declined to 60·7. It was not so many years ago that it was as high as 123. For this they had to thank many things, and among them he had no doubt was the purity of the milk supply and the fact that the municipality had brought about an increased consumption of milk among those who had not the means to purchase sufficient for their requirements. They were spending a large sum of money annually in the provision of milk to necessitous cases, and he believed they could not do a better thing for the community. If there was one thing in which they took a special pride, it was their University, and particularly because of the attention which was given to the production of milk, butter, and cheese. He hoped the members would find Reading a centre of great interest, and if they did not have an enjoyable time it would not be the fault of Mr. Whitley.

Mr. Whitley, having expressed the thanks of the members for the cordiality of the Mayor's welcome, an inspection was made of the Museum under the guidance of Mr. H. M. Wallis, the hon. curator. An interesting collection of Roman remains from Silchester and the Abbey ruins was inspected as well as the natural history collection and art gallery. Mr. Wallis made a most entertaining guide, and it was to be regretted that more time was not available for a closer inspection. It was, however, a pleasant re-union for many members who had met at previous conferences, and, as Mr. Whitley pointed out, the large number who were present, after a lapse of eight years, was a testimony to the popularity of such gatherings.

In the morning the members met in the Chemical Theatre of University College, where an address of welcome was given by the Principal, Mr. W. M. Childs, M.A. He remarked that the B.D.F.A. was a household word in that College, and one of the very first things the College did in an important way thirty years ago was to carry through the negotiations which resulted in the British Dairy Institute being placed there and associated with their work. It was one of the parts of the College of which they were proudest and the relations between the two bodies were of the most amicable description. There were two persons in the room who were among the first students to attend the British Dairy Institute twenty-eight years ago. The Institute was now altogether too small for the public demands made upon it, and it was extremely urgent that it should be extended at an early date. After referring to the exceptional facilities for agricultural education afforded by the College, he proceeded to refer to the work of the National Research Institute. They had recently acquired a

new farm adjacent to their older farm at Shinfield, which had progressed as rapidly and successfully as funds would permit. In welcoming the members they felt they were welcoming friends with whom they were pleased and proud to co-operate.

DISCUSSION ON THE MILK BILL.

The Chairman then introduced the Earl of Onslow, Parliamentary Secretary to the Ministry of Health, who had come down to address the Conference on the subject of the Milk Bill. His Lordship proceeded to explain the provisions of the Bill clause by clause. He said that the reason for the introduction of the Bill and the postponement of the 1915 Act was the want of money for administering the latter. It had been estimated that the cost of bringing the Act into force would amount to £700,000 per annum to start with and as the machinery developed it would further increase. In addition, there would be the cost of compensation under the Tuberculosis Order amounting to £150,000, thus making a total of £850,000, which in a few years would rise to £1,000,000. There was another reason for bringing in the Bill. The Orders which were issued under the Defence of the Realm Act automatically died out on September 1st next. The grading of milk, for which provision was made under those Orders, had received public support and there was no desire to get rid of it. The clause for the registration of purveyors was designed for the protection of the consumer in the case of milk being sold which was believed to be endangering or was likely to endanger the public health. An important point in connection with the power to remove a purveyor from the register was that no person would in any way be interfered with in his business until the last court had pronounced against him if he chose to appeal. Criticism had been directed to the fact that the clause only dealt with retailers. The answer was that they were taking the protection of the public at the point where the milk passed direct to the consumer from the distributor, and it would be for the latter to deal with the wholesaler or producer if the fault lay with the milk as received by him. Under Clause 3 Certified milk would be what is now known as Grade A (Certified) milk, the principle being that it should come from selected herds and free from gross bacterial contamination. They wanted to make it possible for every decent farmer to produce Grade A milk and for the same to be sold at a price accessible to practically everyone. The object of the provisions as to Pasteurised milk was really to define Pasteurisation for trade purposes and to provide that no one should sell milk as Pasteurised unless it had been subjected to a certain process. It might, for instance, be the holding process, but this had not been settled, and before the Order was drafted they proposed to consult with all interests concerned. The Orders made under the Act would have to be laid before both Houses for twenty days; so far as the grading of milk was concerned the Ministry of Health would alone be responsible,

but with regard to other Orders they would be prepared in agreement with the Ministry of Agriculture. As regarded the clause dealing with imported milk the Ministry had powers under the Sale of Food and Drugs Act, but they were permissive. Under the Bill it made it obligatory to take steps to put imported milk on the same footing as milk produced in this country. A new clause had been put in the previous day designed to reach the actual culprit instead of the employer, where there was no question of the latter's guilt. Another new clause dealt with the responsibility of the producer and provided that after the milk had left the custody of the latter if it was in a closed and sealed churn and anything happened to it subsequently, he could not be held responsible.

The Chairman, in inviting discussion, said that the B.D.F.A. was composed of both producers and distributors. It was the living and outward and visible sign of the absolute necessity of the union of those two interests.

Mr. Jesse Skinner (Brigg) in proposing a vote of thanks to Lord Onslow, said he came from the north and was, as the Chairman had said, a farmer pure and simple. It was his first opportunity of coming face to face with a member of the Government, and he was glad to do so. He found a good percentage of the gentlemen present were hostile to the producers in that they were trying to fleece them. (Laughter.) He agreed, however, that they were all interdependent and that the distributors should be there, but they had had a warning. (Hear, hear.) There was nothing much to which the producer could object in the Bill. But as to Clause 5 (2), which imposed heavy penalties, he would like to know what was the definition of tuberculosis, who was going to say what it was, and who was going to compensate them? There were thousands of cows in milk that were not sound. (Lord Onslow here interjected that the clause only applied to tuberculosis of the udder.) Mr. Skinner continued that he thought co-operation was a grand thing, but the only chance for the farmer was to get at what was the cost of production of a gallon of milk. At that moment he was taking costings on his farm, and the previous week it worked out at 7d. and a decimal point plus the freightage. He thought the retailer was getting more than his pound of flesh, and the margin was not adequate. He recognised, however, that those farmers who were more primitive in their methods were not put to the same expense as those who produced their milk in a proper way.

Mr. G. Titus Barham, in seconding the vote of thanks, as a producer and distributor, said they were grateful to Lord Onslow for coming down from town on purpose to enlighten them on the subject of the Milk Bill. His Lordship would be gratified to know that his efforts in introducing the Bill were likely to bear fruit, and that it would in all probability be passed unanimously in the House of Lords. Producers and distributors were especially anxious to find some means of satisfying the minds of the public. They were aware

that many of the newspapers published articles which were very damaging indeed, and those who, like himself, were large distributors, knew there was absolutely no ground whatever for the statements so frequently made. (Hear, hear.) At the same time they had to satisfy some of the members of the medical profession and certain of the public, and if that Bill would give to the latter more confidence in the article in which they dealt they would welcome its advent very heartily. (Hear, hear.) As regarded the Act of 1915, speaking for himself he would have preferred that it should have been dropped altogether. (Hear, hear.) Its suspension was said to be due to the high cost of administering it, but he would like to ask his lordship whether he thought this country would be better able to afford an expenditure of an additional million a year in three years time than it was now, and whether any of those present were likely to be richer at that time. And then as to the amount, had they ever known any estimate made by a Government that came to anything like what it was intended to be? (Hear, hear, and laughter.) His own experience was that the actual expenditure was always very much more. One thing he had to give the framers of the Bill credit for was that they had endeavoured to obtain the opinion of those connected with the production and distribution of milk. He was afraid the Bill would mean an increase of the public and municipal officials who have control over the milk supply. Taking them as a whole, he must honestly say that they had done their duty to the best of their ability, but there were instances where they had carried out their duties in a very arbitrary manner, and made their business more expensive to conduct than it would otherwise be. They did not sufficiently realise that if a trader did not make a profit at the end of twelve months he had to close down. (Hear, hear.) Grade A milk was a subject of considerable interest. He himself was a producer of Grade A and Certified milk, and for many years had produced it before it was sold under that designation, and he could tell them it was no light task to undertake. They were subject, in the case of Certified milk, to a very strict bacteriological test, and unless there was thorough supervision they would have lapses which would undo their work. He did not say they could not do it; they could if all their arrangements were absolutely complete, but they must have constant supervision. He had occasionally taken tests of each of his milkers, and it was rather remarkable the difference in the respective bacteriological counts. If they had only one milker neglecting any of the precautions, failure would be the result. With regard to pasteurisation, he gathered that the clause would not prevent milk being sold which had been pasteurised by the flash process, but he would like to ask if a customer enquired whether milk was pasteurised and the answer was yes, would that be an infringement of the law? He concluded by heartily thanking his lordship for his lucid explanation of the Bill.

In the course of general discussion, Mr. S. Wallace (Herts) said that the Bill did not apply to Ireland, but they might get milk from

Ireland and what would be the safeguards in that case. Dr. Stenhouse Williams said it appeared to him that the only person who would be liable to prosecution under the safeguarding clause would be the retailer. Mr. T. Hawes (Bucks) said the only fair way would be to take samples before the milk left the control of the farmer. Speaking of the low prices obtained last spring, he thought protection should be given to small producers by the fixing of minimum prices. Mr. W. Hardie (St. Leonards-on-Sea) said he hoped the tuberculin test would not be given up for Grade "A" milk. He considered the Bill should provide for the registration of farmers as well as retailers. The weakest point in the Bill was that there was no standard for condensed milk. During the past few months large quantities of condensed milk containing no fat content whatever had been placed on the market and used by the class least able to protect itself for the feeding of children. A member asked whether re-constituted milk, which would not be allowed to be mixed with new milk, could be sold independently, such as dried milk converted into liquid form.

In replying generally, Lord Onslow said he did not think there would be any necessity for further officials, and the cost of licences would probably be met by the fees chargeable. There was nothing to prevent milk pasteurised by any other process than that laid down in the Orders being sold, but it could not be sold under the designation of "Pasteurised." As to Ireland, milk would come under the clause dealing with imported milk. He was somewhat non-committal with regard to re-constituted milk, or, as he described it, dried milk sold wet; but it was clear that it could not be mixed with ordinary milk. He did not think there was any need to register dairy farmers beyond the existing registration, as any default could be dealt with by the purchaser of the milk. As to the point about condensed milk, he was inclined to think that this was covered by the imported milk clause, a view which was evidently not shared by those present.

The resolution of thanks was heartily carried, and Lord Onslow in replying said that before any Orders were framed it was proposed to consult those connected with the industry and seek their advice and assistance.

VISITS IN READING.

The remainder of the morning was occupied in visits to the College grounds and building, the British Dairy Institute and the National Research Institute in Dairying. The College is a wonderful example of rapid growth, since it is less than thirty years since it started in a small way. In ten years it won the rank of a University College and a State Grant. It struck out a line of its own by taking up the study of agriculture, and is now probably the leading centre of agricultural education in the kingdom. The number of students exceed 1,600, of whom 900 are day students. It owes much to the benefactions of the late Right Hon. G. W. Palmer, Lady Wantage, and Mr. Alfred Palmer, who have provided it with munificent

endowments, and its charter as a university is a recognition which may not be long delayed.

Although considerable expansion was shown in the Dairy Institute since the Association's visit twenty years before, it was obvious that the accommodation was far too limited for its present requirements. There were fifty students in attendance and a long waiting list for admission. There was much of interest to be seen in the equipment, which is on the most modern lines, and in the processes for making butter, pressed, unpressed and soft cheese, and the completeness of the instruction afforded there, under the direction of Mr. Alec Todd, was evident.

At the Research Institute Mr. James Mackintosh and other members of the staff were kept busy explaining to the successive parties the work of the Institute. Much could be written as to the value of the investigations carried on there. Sufficient to say, advice is sought from all parts of the country, and many a farmer has received valuable assistance from the Institute in solving the difficult problems which so frequently arise in the course of dairy husbandry. Particular interest was shown in the exhibits demonstrating the presence of tuberculosis germs in the dung of apparently healthy animals, and charts were explained showing the yield of milk of cows at various ages. From these it would appear that the maximum yield is reached, in the case of poor or moderate milkers, with the fourth calf, but in that of heavy milkers the yield is progressive up to the fifth or sixth calf.

The Institute forms part of the College, but its management is delegated to a Board including members of the College, the Ministry of Agriculture, the Ministry of Health, the R. A. S. E., the B. D. F. A., and the National Farmers' Union. It has a staff of eight persons, and the subjects represented are dairy chemistry, dairy bacteriology, and dairy husbandry.

At the conclusion of the round of visits the members proceeded to St. Patrick's Hall, where lunch was provided on the kind invitation of the President.

In responding to the toast of his health, proposed by Mr. W. C. Brown, Lord Elveden said that those conferences undoubtedly did a great deal of good. Reading seemed to be an ideal place to which to come. They had the opportunity of seeing the whole of the machinery by which advancement could be made; they had their school teaching young people the best methods of practical farming, and the Research Institute was laying the paving-stones along which teachers could walk. It took years of patient study and experimentation to investigate the various problems connected with their industry, but it was absolutely essential if they were to be guided in the right manner in their conclusions. His lordship made a strong appeal for support for the Institute, which meant doing something for themselves and the community. When they considered that clean milk would keep, in some cases, ten times as long as ordinary milk which had not been

subjected to the same precautions, they would realise that, besides the babies, the people who distributed it would benefit by having better-keeping milk, and this would eventually be to the advantage of the producer. He instanced the research work which was being done in the brewing industry. His firm had done more for the science of brewing than any other, and they had reaped a great advantage from it. If this research work was necessary in the case of beer, which, after all, kept for a long time, how much more was it necessary in the case of so perishable an article as milk; yet at the Research Institute they were only at the very beginning. He thanked them for the toast, and assured them he was only too glad to be able to help them in the way he had.

VISITS TO STOKES FARM AND MURRELL HILL.

Proceeding by motor coaches, the party drove out to Wokingham to inspect the herd of Berkshire pigs of Mr. W. Howard Palmer at Stokes Farm. They are wonderfully housed in large buildings with roomy styes divided by walls of glazed bricks. They were evidently among the aristocracy of the pig breed, for the leading stock boar, "Murrell Prince," has won thirty-four championships and awards in three years; while a litter of eight of which he was the sire was sold for £1,000. The Shire horses were good to look upon, and a two-year-old colt was shown which had won fifteen first prizes and two championships, while a four-year-old mare had won ten firsts, a championship and gold medal.

Returning to the coaches, the party next visited the Murrell Hill farm at Binfield to see Mr. Palmer's herd of Guernseys. The dairy is in charge of Miss E. E. James, and has a record of many prizes won at the Dairy, Royal, and other Shows for produce. The model dairy, a pretty circular thatched building tiled throughout in the interior, was much admired. Here was arrayed the setting pans for cream raising, but more modern methods were in evidence in the other dairy premises, where the most up-to-date machinery and appliances were installed. The making of Devonshire scalded cream was in progress and around the shelves were a number of cheeses of various types which had been made from the milk of the herd. The herd has been very successful in the Show yard, and in 1920 secured three first prize-winners at the Royal Show, and on three occasions has won the Yearling Bull Class at the same Show. An interesting feature of the visit was the demonstration given by Mr. G. Titus Barham, by request, on the judging of a Guernsey cow. The members formed a ring around the animal, and Mr. Barham explained, point by point, the various features comprising the true type of an animal of this breed. It was much regretted that Mr. Palmer was unable to be present to meet the party, owing to being confined to his room, but his place was taken by his son, who gracefully acknowledged the vote of thanks which Mr. Whitley proposed at the tea which Mr. Palmer had so hospitably provided.

A pleasant drive back to Reading concluded the day's proceedings.

POULTRY AND A GRADE "A" MILK FARM.

The main objective of Wednesday's programme was the visit to Mr. G. Holt-Thomas' farm at High Wycombe, but *en route* two interesting calls were made—the first at Mr. E. H. Soole's Poultry Farm at Henley, and the second at Mr. R. H. Keene's farm at Medmenham, Marlow. The former is organised for mass egg production. There were 2,000 birds laying 1,000 eggs a day. The prevailing breed is the White Leghorn, and the average per bird is 170 eggs per annum. Incubators for 6,000 and 3,000 eggs respectively are installed. The farm is of 100 acres, rather poor land, and it is intended to increase the number of birds up to 10,000 laying stock.

The farm of Mr. R. H. Keene was an object-lesson, and showed that it was possible in ordinary farm buildings of the older type to produce Grade "A" milk. In fact, Mr. Keene had just been successful in winning the Challenge Cup and first prize in the Clean Milk Competition organised by the Bucks Agricultural Instruction Committee. The sterilising of the utensils is essential to the production of milk of the cleanest description, but elaborate apparatus is not necessary for this. A galvanised iron tank is used, into which the utensils are placed almost haphazard. It is fitted with a wooden shutter, pegged on to the open side, and the sterilisation is effected by means of a steam jet. The churns are sterilised on a similar principle, the jet being directed immediately into the interior of the churn. The guiding principle is cleanliness, personal and mechanical throughout. Mr. Keene has forty recorded Shorthorns, and is a judge and breeder of Shire horses.

AN ARABLE DAIRY FARM.

A long drive under ideal weather conditions brought the members to the Northdean Farm of Mr. G. Holt-Thomas, near High Wycombe.

The Northdean Herd of British Friesian Cattle was founded, owing to the extraordinary success, from a milk point of view, of a few of these cattle introduced into the ordinary Milk Herd at Northdean, with the final result that a Pedigree Herd of Black and White Cattle was established. The land at Northdean, situated in the Chilterns, is of very poor quality, and very unsuitable for dairy farming. The system is essentially dairy farming on arable land. The grass land is poor as regards feeding quality, but is necessary for exercise, &c., of pedigree stock. It provides a certain amount of food for a few months, but is assisted by the growth of forage crops, which come into use in the early spring and later in the summer, a load or so being placed in the fields in the evenings. The same crop is grown for the silo, on which, although roots are also grown, the herd largely depends in the winter. It is found that winter-sown forage crops, consisting of tares, oats, wheat, &c., yield sufficiently well on the flinty soil to fully sustain a Dairy Herd, without which dairying in such country

The Home Counties Dairy Conference.

would be impossible. In harvesting the forage crops after the silo has been filled, and green wheat cut for the herd during the spring, the balance of such crops is made into hay, which has a high nutritive value. In addition to the forage crops, small strips are sown in rotation, to come in for cutting green, winding up in the autumn with a crop of maize, a crop, it may be mentioned, which stood the drought of last year very well indeed and yielded well.

The milk yield of the Northdean Herd is high, the lactations finished in 1920 averaging over 1,300 gallons, and in 1921, 1,250 gallons. The system of feeding at Northdean, so far as concentrated food is concerned, is to fit the cow or heifer before calving, and when in milk to feed 3 lbs. of concentrated food per gallon of milk yielded. The concentrated food consists largely of bran, and although it is necessary in breeding pedigree stock to keep up the milk yields, for this reason it is not thought in any way uncommercial to feed this quantity of concentrate. The cow is in no way forced, and on a reduction of milk yield the food is immediately reduced, so that the cow is actually fed to what she is producing, and from a commercial point of view, even with milk at its lowest price, it is thought that this method of feeding should be profitable.

The Northdean Herd has developed one cow giving 2,520 gallons in the lactation period. It has several 2,000-gallon cows, and many very high yielders. In the case of the heaviest milkers, the milking is done three times daily.

The Herd consists of about fifty to sixty milk cows, and a similar number of young stock. The aim is quality and type as well as milk, and in addition to the "Shirley" Cup at the London Dairy Show, the Herd has taken many inspection prizes at the various shows over a period of years. With a view to maintaining type, bulls and cows of pure Dutch origin are kept in the Herd, there being at the time seven pure Dutch cows and three pure Dutch bulls.

At the luncheon to which the members were hospitably entertained by Mr. Holt-Thomas, Mr. Robert Long proposed the health of the host and hostess. In response, Mr. Holt-Thomas said he had tried to get constitution and milk and he hoped that he had got a first-class dairy type apart from breed. He paid a tribute to Mr. Whitley's twenty-seven years' work on the Council of the B.D.F.A., and particularly to his work at the Dairy Show. Mrs. Holt-Thomas, who was most indefatigable as a hostess, also briefly responded, and expressed the hope that the Conference would come again.

AT WINDSOR—A ROYAL MESSAGE.

Proceeding to the Royal Borough the members on arrival were conducted over Windsor Castle, and subsequently were entertained to tea by the president who, on this occasion, was accompanied by

Lady Elveden. Before leaving to go over the Royal Farms his lordship said: "I have a message from His Majesty; it reads:—

"The King wishes me to let you know that he is very glad to hear that you, as President of the British Dairy Farmers' Association, are taking a party of farmers from all parts of England to see His Majesty's farms at Windsor. The King wishes you to assure them how greatly interested he is in them and their work, and His Majesty hopes that they will spend an enjoyable and profitable day."

The message was received with much applause. A coach drive to the Royal farms, an inspection of cattle and the model dairy, with its tiled walls, ceiling, and floor, with troughs for running water under the long benches, a long walk back to the char-a-bancs, and a return drive through Windsor Great Park to Reading brought to a conclusion a long and highly enjoyable day's programme.

PAPER BY MR. JAMES MACINTOSH.

On Thursday morning, the Conference assembled in the Chemical Theatre of the College to listen to and discuss a paper by Mr. Jas. Macintosh on "What is a Profitable Milk Yield?" (See page 67).

In the discussion which followed, Mrs. Reeves (Clevedon) raised the point as to whether from the breeder's point of view the October-bred stock would carry on the same amount of production as the April-bred stock. They were always given to understand that cattle calved in the spring were better for after-production than October calves. Mr. Macintosh answered that farmers in that district did not consider that October calves were in any way prejudiced, and a number thought that winter-reared calves were better than summer ones. Mr. S. Wallace (Herts) pointed out that depreciation had been omitted in the figures and this last year it had been a serious item. Then there was the loss from abortion. The figure of 2s. per cow for labour was, he thought, rather underestimated. In answer to Mr. Towler, Mr. Macintosh said the average period of lactation was 43 weeks, but this was largely a question for the breeder. Feeding did not have a material or permanent effect on the butter-fat if the animal was already reasonably well fed. The period of highest yield was 3 to 4 weeks after calving in the case of moderate milkers and 5 to 6 weeks in the case of heavy milkers.

VISITS TO MESSRS. SUTTON'S.

At the conclusion of the discussion the party proceeded by motor coaches to Messrs. Sutton & Son's Trial Grounds. Here they were received by Mr. E. P. F. Sutton, and under the guidance of experts were conducted in groups over those portions of the grounds in which the members were more particularly interested, it being obviously impossible to cover the whole of the extensive grounds in the time

available. In this way, the flower, vegetable, and grass sections were respectively inspected. Much useful information was obtained, whilst the wealth of bloom in the flower grounds was a delight to behold.

Returning to the Market Place a visit was paid to Messrs. Sutton's Seed establishment. The vastness and completeness of the organisation impressed the visitors and the various processes of testing, cleaning, and grading were observed with great interest. It afforded evidence of the great care exercised by Messrs. Sutton in ensuring the purity and germination power of the seeds supplied by them. The company was afterwards entertained to luncheon by Messrs. Sutton, and Mr. Whitley cordially voiced the appreciation of those present of their hospitality.

THE COLLEGE FARM AND RESEARCH FARM.

A motor drive of four miles brought the party to the College Farm and Horticultural Station at Shinfield. The farm possesses no exceptional features, but may be said to be typical of the conditions with which those who receive instruction would have to deal. It consists of 141 acres and is under the direction of the Professor of Agriculture, Mr. S. Pennington, B.Sc., who resides there. The live-stock includes Shire horses, pedigree Berkshire pigs, Ryeland sheep, dairy Shorthorns, and various breeds of poultry. The dairy herd has been built up from a group of good heifers by the consistent use of pedigree bulls of milking ancestry, and has done well in milking trials. The Horticultural Station is included in the College Farm and consists of 11 acres, while a further 23 acres of adjoining land is rented. Various trials are undertaken, including the trials for the National Sweet Pea Society.

The Shinfield Manor Estate has been acquired for the experimental work of the National Institute for Research in Dairying. The Institute owes much to the generosity of Viscount Elveden, which enabled it, with the assistance of the Development Commissioners, the Ministry of Agriculture, and other contributions, to enter into possession in October, 1920. The property consists of about 350 acres, of which 165 are arable, 135 pasture, and 50 are gardens, buildings, and woodland. It is at present in a developmental stage, but new buildings will shortly be erected and the staff of the Institute transferred to its new home. The stock at the time consisted of 6 horses, 16 cows in milk, 18 in-calf heifers, and 50 young stock. The scheme of work, under the supervision of Dr. R. Stenhouse Williams, will include the study of the chemical constitution and other properties of milk and its products, experiments in the management of cows, the handling and distribution of milk, cropping, feeding, and other problems connected with dairying and dairy management. A good deal has already been done in the direction of experiments demonstrating the value of milk and dairy products, and the effect of vitamins is being investigated by a series of pig experiments which were in progress at the time.

A feature of the work is the demonstration of how milk can be produced to meet the requirements of the Grade "A" regulations under ordinary farming conditions, and one of the most interesting items of the visit was the demonstration of clean milk production in primitive buildings. The buildings certainly answered the description given to them and some of the dairy instructors present felt that they did not accord with their own precepts. But they were not intended as an example of what such buildings should be, they typified buildings which are to be found on numerous farms and the important point was that even under such conditions, with intelligent care, clean milk could be produced without excessive cost.

A ROUND OF FARM VISITS.

On the Friday morning, after a delightful drive of 9 miles, a visit was paid to Major Morrison's farm at Basildon. The estate comprises 4,000 acres, of which 2,700 is arable and 1,200 grass. Here was seen a great variety of stock, including pure bred Shire horses, Red Poll, Shorthorn, Aberdeen-Angus, and Jersey Cattle, Berkshire and Tamworth Pigs, and Hampshire Down Sheep. Many successes in the Show Yard were recorded in all these directions. No less than 30 pure breeds of poultry are kept, those which are specialised in being the Light, Red, and Speckled Sussex. Open pig-keeping is practised in the woods and feeding experiments are being conducted with "Vitmar." The party was entertained to luncheon by Major Morrison, whose generous hospitality was greatly appreciated and cordially acknowledged.

The next move was made to Mr. J. H. Benyon's Milestone Farm at Theale. Here the excellent farm buildings were much admired, and it was evident that the conditions were favourable to the production of milk of the highest quality, and, indeed, a licence has been held to use the designation of "Grade A" milk since 1919. The herd includes 45 Dairy Shorthorns and is a recorded one. In 1920, five cows gave over 10,000 gallons.

A farm of a different description was that of Mr. Edward Lousley, of Burghfield, which was next visited. Mr. Lousley is a tenant farmer farming 400 acres and he keeps a herd of 40 recorded Dairy Shorthorns and their young stock. He has demonstrated the possibility of producing Grade "A" milk under ordinary farming conditions and has done so since 1920. Tea was provided by kind invitation of Mr. Lousley.

On returning to Reading, many members took the opportunity of paying a visit to the Farmers' Clean Milk Dairies, Ltd., in the Greyfriars Road to see how the distribution of about 250 gallons a day of Grade "A" milk was carried out. Thus the members of the Conference were enabled to get a view of the whole procedure involved in the production and distribution of milk of this designation.

In the evening the members assembled together in St. Patrick's

Hall to dine with their guests. Viscount Elveden presided, and with him was Lady Elveden. It was a highly enjoyable and successful function and due acknowledgment was made to those who had contributed to the success of the Conference by receiving the members and entertaining them so hospitably.

FINALE AT CLIVEDEN.

The concluding day was devoted to a river trip to Cliveden to inspect Lord Astor's herd and buildings at White Place Farm. Luncheon was served on board and opportunity was taken to pay a well-deserved tribute to Mr. Whitley for his untiring efforts in carrying out the arrangements which had resulted in the Conference being one of the most successful and enjoyable held. On arrival at Cookham, the party proceeded on foot to White Place Farm and were introduced to the conditions under which Grade "A" (Certified) Milk is produced. The buildings had been adapted for the purpose, iron stanchions being used in the fittings. The milking is not carried on where the cows are housed, but a separated shed provided for the washing and milking of the cows. The cows are cleansed with some thoroughness and the milkers afterwards don their sterilised overalls for the operation of milking. The herd consists of pedigree Guernseys and Dairy Shorthorns, the bulk of milk being sent to London and a portion being supplied to retailers in neighbouring towns. Forage crops are grown to supplement the pasture and two silos are filled each season to provide winter feed.

Before dispersing a subscription was raised by the members of the Conference for the purpose of providing a Challenge Cup for competition among the students of University College as a memento of the Association's visit and as a slight acknowledgment of the kindness and assistance received at the hands of the College authorities.

It would not be fitting to close without a reference to the indefatigable efforts of the Secretary, Mr. B. Ravenscroft, to promote the comfort and convenience of the members and to his skilful management of the details of the Conference and excursions.

WHAT IS A PROFITABLE MILK YIELD?

By JAMES MACKINTOSH, O.B.E., N.D.A., N.D.D.

THIS question is asked with recurring frequency by dairy farmers in general conversation, in the *Agricultural Press*, and elsewhere. In these days of milk recording one would think that it would be a comparatively simple question to answer; a closer study, however, shows that the answer becomes more and more elusive and can only be given with any definiteness when much information has been collected on associated points.

Generally, a profitable milk yield may be defined as a yield which brings in a return greater than the cost of production. It is impossible to state definitely the yield which will be profitable without a fairly close consideration of three points. These are:—(1) The Cost of Production; (2) The Amount of the Yield; (3) The Selling Price of the Milk. Each of these factors is again affected by conditions which vary greatly, according to local circumstances and time of year.

The Cost of Production is influenced by the cost of producing home-grown foods, including grass, the cost of purchased foods, the quantity of food given, the labour (amount and rate of wages), the depreciation of cows and overhead charges.

The Amount of Yield is influenced by the breed, the age, and the individuality of the cow, the time of calving, feeding, and general management.

The Selling Price of Milk is influenced by the time of year, nearness to market, and the quality of the milk.

The subject is a wide one, therefore, I propose to try to deal with it in a limited sense, considering the cost of production of milk from (a) October calving cows with different yields, and (b) April calving cows with different yields, and with the same selling price for milk from (a) and (b).

Cost of Production.—The figures used are not from actual practice, but are based on local custom. The rations given each month are shown on the charts on pages 74 to 79, and the prices used in working out the costs are: Winter—roots, including cabbage, 20s. per ton; hay, £5 per ton; soiling crops, 10s. per ton; straw, £2 per ton; concentrates, average £11 per ton. Summer: pasture and aftermath are taken at $1\frac{1}{2}$ acres pasture at 40s. per acre, £3; 1 acre aftermath at 10s. per acre, 10s. Total—£3 10s. per cow; with undecorticated cotton cake at £10 per ton.

In winter it is not difficult to get the quantities and costs month by month; but, for summer, monthly costs necessitate a division of the total cost of the grazing. The following apportionment has been used per cow: May, 15s.; June, 20s.; July, 15s.; August, 10s.; September, 5s.; October, 5s. Total, £3 10s. Quantities and costs are notably open to criticism, but are sufficiently close to conditions in this district to provide a basis for an attempt to answer the question which forms the title of this paper.

Labour.—A labour cost of 40s. per week per ten cows has been taken for purposes of calculation ; the full rate has been charged from October to April, inclusive ; for May 30s. per week, and for June to September 20s. per week, or half the full rate. The labour cost is divided equally between the cows.

Depreciation of Cows.—To avoid all possible complexities in the calculations, I have omitted any charge for depreciation, and likewise omitted any charge for the calves. Depreciation and litter have been taken as balanced by value of calf and manure.

Overhead Charges.—This heading includes such minor items as (1) proportion of rent and rates of buildings ; (2) depreciation of machinery and utensils ; (3) veterinary charges ; (4) keep of bull ; (5) keep of milk cob and transit to station or purchaser's premises, and to meet these a figure of 2d. per gallon has been allowed for every gallon produced. The heavy milking cow, therefore, carries a larger proportion of the overhead charges than the poor milker.

Cost of Keep when dry.—The estimates of the cost of feeding when dry have been based on the prices stated and on quantities of food commonly given—though here, again, there is a very great variation from farm to farm. This item is most important when contrasting the cost of feeding October and April calvers—the former are dry at a period of cheap food, the latter when expensive roots and hay have to be fed ; cake is not included in the dry ration, except for the April calving heavy milker, and then only 3 lb. daily for 30 days. Further, the April calvers have longer dry periods (see below.) The cost of feeding when dry has been divided by the yield for each group, and the cost per gallon spread throughout the lactation period accordingly. This cost varies from $\frac{1}{2}$ d. per gallon in the case of October calvers, averaging 950 gallons, to $2\frac{1}{2}$ d. in the case of April calvers, averaging 540 gallons.

Yields of Milk from October and April Calving Cows.—The milk records of over 40 herds in this province, collected by the Dairy Husbandry Section of the Research Institute in recent years, provide material which shows definitely the average yields from cows calving in these months and the proportion of the yield given in each month. This point is most important when the price received for the milk varies largely according to season.

The cows calving in each of the two months mentioned have been classified as follows :—

Group I—Those Yielding under 6,000 lbs. per annum.—

Sub-group I—October calvers averaging 500 gallons—39 weeks in milk and 13 weeks dry.

Sub-group I A—April calvers averaging 540 gallons—37 weeks in milk and 15 weeks dry.

Group II—Those yielding over 6,000 lbs. and under 8,000 lbs. milk per annum.—

Sub-group II—October calvers averaging 700 gallons—42 weeks in milk and 10 weeks dry.

Sub-group II A—April calvers averaging 700 gallons—41 weeks in milk and 11 weeks dry.

Group III—Those yielding over 8,000 lbs. milk per annum —

Sub-group III—October calvers averaging 950 gallons 45 weeks in milk and 7 weeks dry.

Sub-group III A—April calvers averaging 885 gallons— 42 weeks in milk and 10 weeks dry.

For each sub-group the quantity of milk yielded in each month during the lactation period has been worked out and is given below, also the percentage of the yield produced in each month.

COWS CALVING IN OCTOBER—MONTHLY YIELDS DURING LACTATION PERIOD.

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June	July.	Aug.
Sub-group 1 } average 500 gallons	Gallons ...	55	84	75	62	56	50	45	42	22	9	—
	Percentage	11.0	16.7	14.9	12.4	11.2	10.0	9.0	8.4	4.5	1.9	—
Sub-group 2 } average 700 gallons	Gallons ...	55	108	93	85	76	68	66	65	47	27	10
	Percentage	7.8	15.3	13.3	12.1	10.8	9.8	9.4	9.4	6.7	4.0	1.4
Sub-group 3 } average 950 gallons	Gallons ...	70	130	120	107	97	87	88	95	79	51	26
	Percentage	7.3	13.7	12.6	11.2	10.3	9.1	9.3	10.0	8.3	5.4	2.8

COWS CALVING IN APRIL—MONTHLY YIELDS DURING LACTATION PERIOD.

		April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Sub-group 1A } average 540 gallons	Gallons ...	64	103	90	78	68	55	40	25	13	6	—
	Percentage	12.1	17.3	15.3	12.9	11.8	10.3	8.5	6.1	3.8	1.9	—
Sub-group 2A } average 700 gallons	Gallons ...	85	121	105	91	83	72	60	43	27	14	—
	Percentage	11.7	19.0	16.6	14.4	12.6	10.2	7.4	4.6	2.4	1.1	—
Sub-group 3A } average 885 gallons	Gallons ...	88	153	132	115	105	92	76	57	39	20	8
	Percentage	10.0	17.3	15.1	13.1	11.9	10.5	8.6	6.5	3.8	2.3	0.9

The lactation yields are also shown in the attached curves, which illustrate more clearly than figures the differences between the October and April calvers.

When the above results and the curves are compared several important points are noted :—

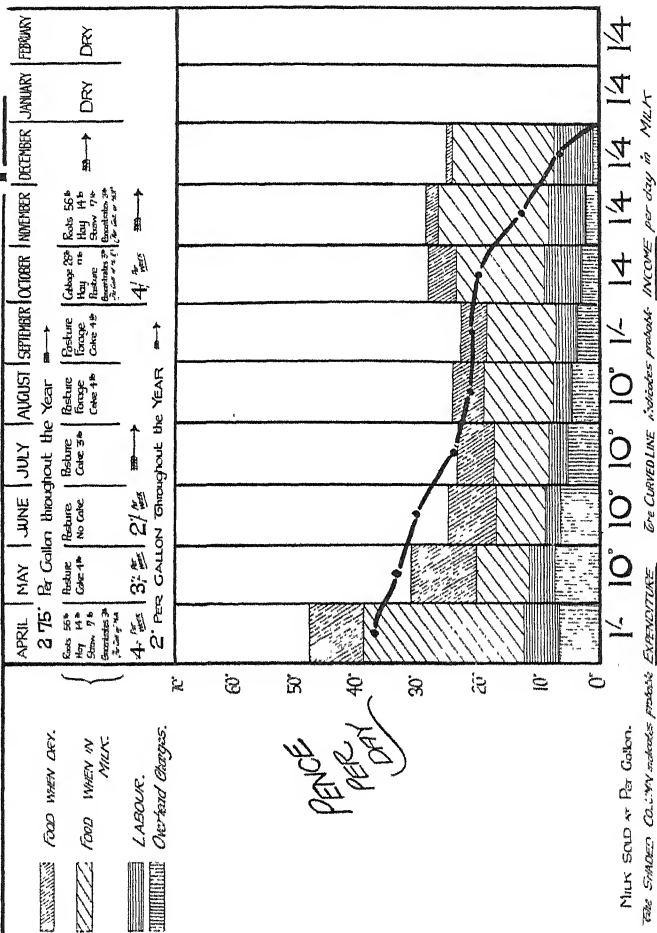
- (1) April calvers attain higher daily yields after calving than October calvers.
- (2) October calvers maintain their yield better than April calvers.
- (3) October calvers giving high yields show greater response to early summer grass than those giving low yields.
- (4) October calvers giving low yields are too near dry to show any appreciable response to early summer grass—no second flush.

Selling Price of Milk.—On this point it has been necessary to assume prices, and the following have been used :—October, 1s. 4d. ; November, 1s. 4d. ; December, 1s. 4d. ; January, 1s. 4d. ; February, 1s. 4d. ; March, 1s. 4d. ; April, 1s. ; May, 10d. ; June, 10d. ; July, 10d. ; August, 10d. ; September, 1s. These prices are obviously open to criticism—in some months they are below last winter's prices, in April they are above current prices, but this may give them a value for forecasting the future which would not have been obtained by rigid adherence to last winter's scale.* Further, they do bear some relationship to prices obtainable, or perhaps likely to be obtainable, in districts where the system of feeding is on the lines already described.

Profit and Loss on the Various Yields.—The cost of production, returns and profit or loss per head per annum when the above prices for milk are applied to the yields of the different groups are summarised below. The results for the year should be studied in conjunction with the charts on the following pages where an attempt is made to show graphically the analysed cost of production and the probable income per day month by month throughout the lactation period.

* At the date of the Conference, the scale of prices agreed to by the National Farmers' Union for the year October 1st, 1922, to September 30th, 1923, had not been announced.

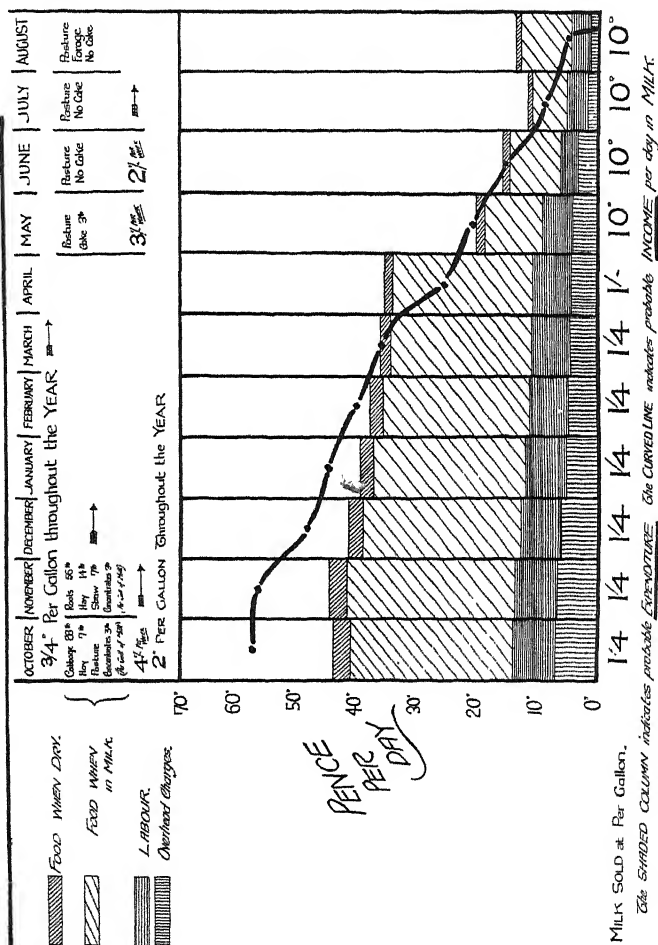
Chart for 540 Gallon Cow Calving in April.



Sub-group I A—April Calvers averaging 540 gallons per annum. —
 Cost of production, £31 ls. 11d. ; returns, £25 5s. 6d. ; loss, £5 15s. 7d.
 A small profit is made in May and June ; in July the income just equals expenditure ; in August and September the loss is slight, and, in April, also in October to December the loss is serious.

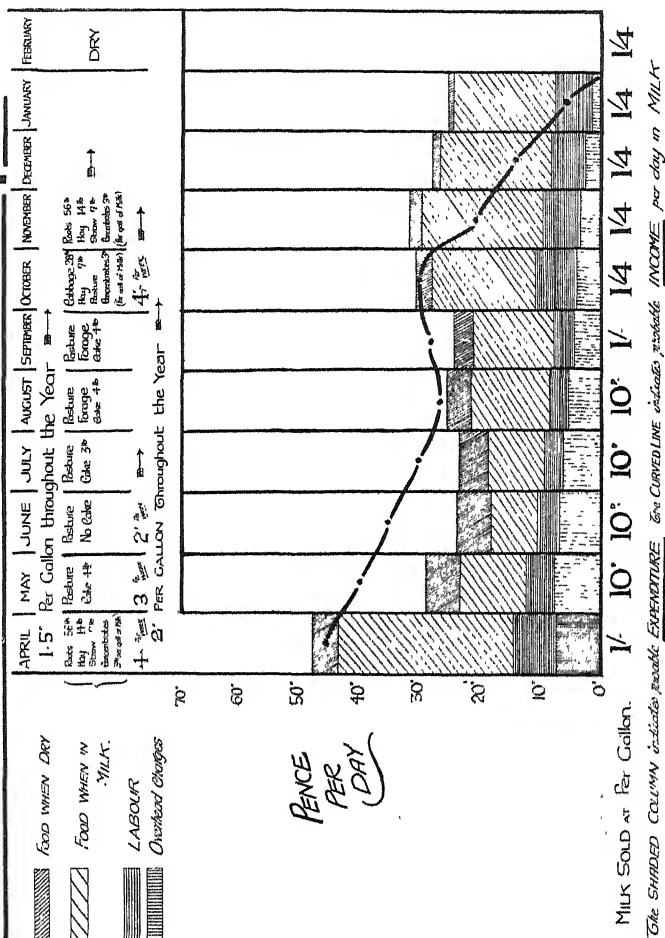
Sub-group II—October Calvers averaging 700 gallons per annum.—
 Cost of production, £39 4s. 6d.; returns, £41 16s.; profit, £2 12s. 4d.
 The profit is made in the months October to February; in March, May, and June expenditure and income are about equal, and in April, July, and August there is a loss.

Chart for 700 Gallon Cow CALVING in October



Sub-group II A—April Calvers averaging 700 gallons per annum.—
 Cost of production, £34 17s. 4d.; returns, £34 2s. 2d; loss, 15s. 2d
 From May to September inclusive a profit is made; in April and
 October there is a slight loss and in November, December and January
 a loss which more than neutralizes the profit made earlier.

Chart For 700 Gallon Cow CALVING in April.



Sub-group III—October Calvers averaging 950 gallons per annum.—
 Cost of production, £44 7s. 10d.; returns, £55 11s. 10d.; profit, £11 4s. A profit is made every month in milk with the exception of April and August; the most profitable months are obviously October, November, and December.

Chart for 950 Gallon Cow CALVING in October.

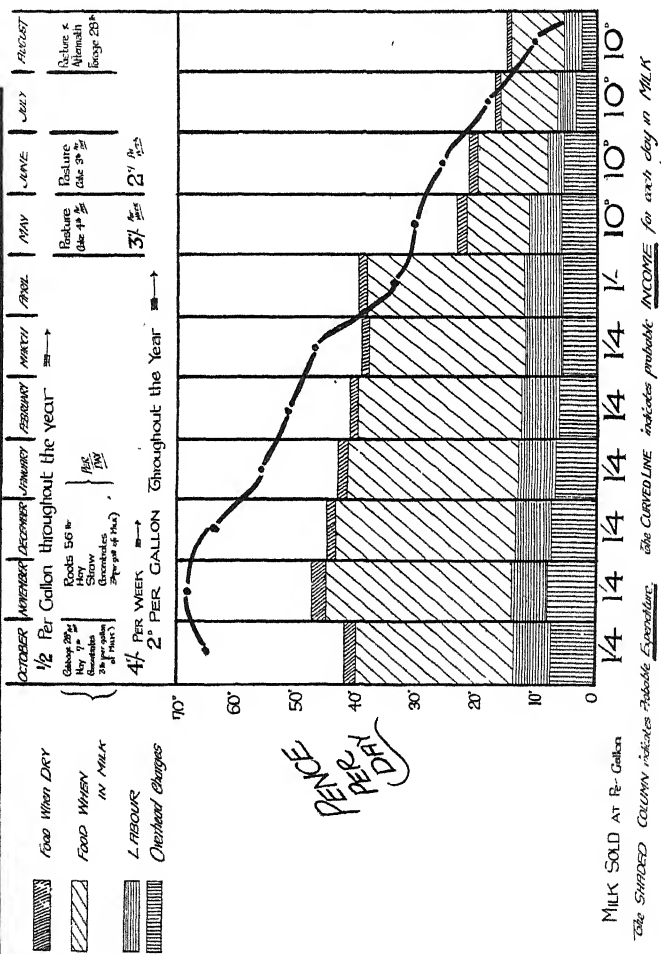
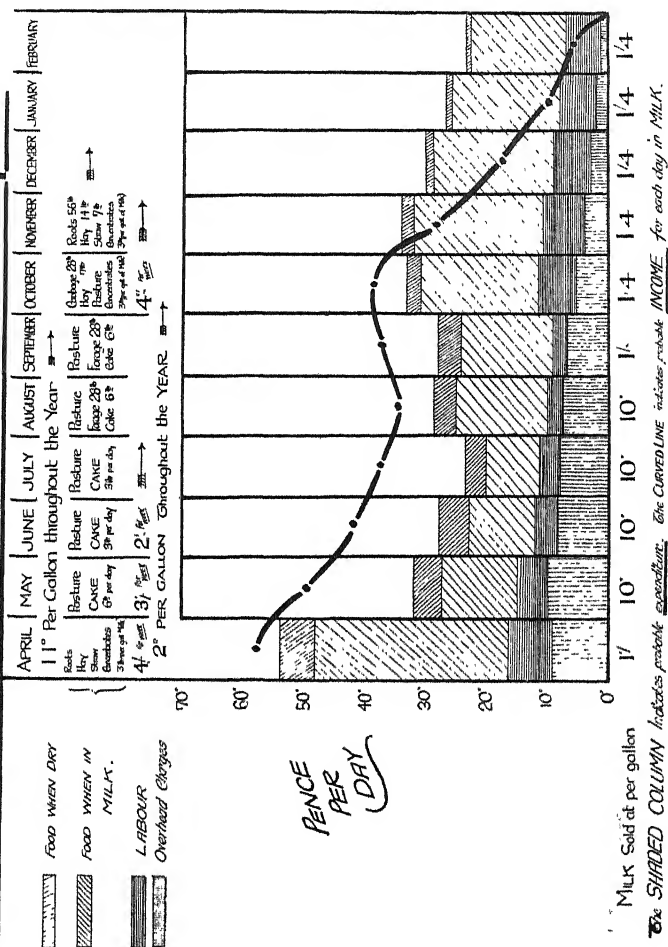


Chart for 885 Gallon Cow CALVING IN April.



It is neither desirable nor advisable that much stress should be laid on the amount of the profit or the loss shown above because of the extent to which estimates have been used in arriving at the different results. Estimates are notably open to criticism, but though the estimates may be considered too low on certain items, on others they may be considered too high, and the broad conclusions to be drawn from the comparisons indicate certain points worthy of the close attention of the dairy farmer.

The chief points are :—

- (a) The consistent difference (though varying appreciably in degree) in favour of the October calvers. The factor which contributes most largely to this result is the higher price obtained for the milk during the months of maximum production.
- (b) The much greater cost of keeping the April calvers during the dry period. This factor in the cost of milk production is often overlooked, yet in the case of April calving cows of poor milk yielding powers it exercises a material effect and the comparisons indicate that such cows are a greater source of loss than others giving similar yields which calve in October.

I am well aware of the numerous pitfalls which surround anyone who attempts to discuss the cost of milk production, but the importance of the subject and the desirability of showing one method by which the question which forms the title to this paper may be answered are I hope, sufficient reasons for tackling a contentious problem. Another reason, if one were necessary, is that a topic of this nature bristles with points which are eminently suitable for discussion at a Conference of the British Dairy Farmers' Association.

ANNUAL REPORT OF THE CONSULTING CHEMIST AND DAIRY BACTERIOLOGIST,

F. J. LLOYD, F.I.C., F.C.S.

DURING the year 158 samples were sent me by members for analysis or examination, which is slightly less than the number received in 1921. The nature of the samples has been very much the same as in former years, the majority being milk from cows or goats. The others have been samples of butter, cream, and milk powders. There has, however, been little or nothing of special importance to report upon.

BROKEN SAMPLES.

Quite a number of samples have been lost by breakage in the post. I have examined each of these carefully and am of opinion that the damage is mainly due to want of careful packing. Each and every bottle should be first well wrapped in plenty of newspaper and then in corrugated paper and tied. This should again be surrounded with plenty of newspaper, and either packed in a box or, if made into a parcel, well surrounded with corrugated paper. The package should have a post office "Fragile" label, as special care is taken with such samples. The address should be written on the parcel, also on an attached label, and the stamps placed on the label. Samples so packed never fail to reach me intact.

"GRADE" MILK.

Under the Milk and Dairies (Amendment) Act, 1922, the milk producer who wishes to be licensed to sell Grade Milk will be required to have "one or more samples of his milk submitted to bacteriological examination at his own expense," and will have to satisfy the licensing authority "that the results of the examinations are such as to make it reasonably probable that the milk will comply with the prescribed tests at the time of distribution."

I fail to see how any farmer can ensure that his milk will comply with this condition, unless he himself is the distributor. Even then, as the increase in the bacterial contents of milk depends mainly upon the two factors, time and temperature, there may be unavoidable delays in distribution, or very hot days, which would cause the milk to surpass the standard. The result might easily be the loss of his licence.

THE DAIRY SHOW OF 1922.

By SAMUEL R. WHITLEY.

THE Dairy Show of 1922 (October 17th, 18th, 19th, and 20th) was the fourth held since the end of the Great War and each one of the series was more successful than the last.

Some had looked for a diminution of interest after the three record shows of 1919, 1920, and 1921, but again the accommodation in the Agricultural Hall, Islington, was taxed to its utmost, the available stand space being all let many months before the date of the Show, and when the competitive entries were all received, the members of the allotment of space committee were caused very considerable anxiety as to where all could be adequately housed, even after all late entries had been refused.

A certain number of the Poultry Classes had to be cancelled for lack of space and if all the Cattle entered had arrived at the Show, space could not possibly have been found for them, but past experience had shown that of the cows entered, only about two-thirds, on the average, are able to put in an appearance at the Show, owing to not being calved in time and other difficulties inevitably connected with Dairy Cattle. This experience was repeated and in the end all were fairly comfortably housed, though the herdsmen, by bringing with them an ever increasing amount of forage and roots, caused undue crowding in the space available for the accommodation of their private stores, even after this space had been made three times as large as it used to be.

The main plan of the Show was similar to that of previous years, with the Cattle in the centre of the Main Hall, the Poultry and Pigeons in the Galleries, the Dairy Produce and Bacon in the Gilbey Hall, and the Goats in the annexe beyond the Gilbey Hall. One would be glad to give the Goats better accommodation, but it is difficult to see where it could be found without unduly entrenching on some other department.

Rumour has it that the Hall authorities are considering an increase of the accommodation by raising the roof and putting a gallery round the Gilbey Hall. This would give some much needed relief, but if things progress as they have done since the war, it would not be long before the Dairy Show was again crying out for increased space.

There are many who advocate that the Dairy Show should go elsewhere and find altogether larger accommodation, but these advocates are chiefly to be found amongst those who have not first-hand experience of the difficulties involved.

Two years ago it was decided to hold the Milking Trials and Butter Tests, the very kernel of the Dairy Show, on Monday (before the Show is open) and Tuesday, instead of on Wednesday and Thursday, as had been customary for many years. The change was considered satisfactory as the results were available for the public during the Show, but still not early enough for some ardent spirits, and so the experiment of holding these trials on Sunday and Monday, *i.e.*, entirely previous to the opening of the Show on Tuesday was tried. It may be well to set out the advantages and disadvantages this new arrangement.

The advantages of holding the Trials entirely before the opening of the Show are (1) That the results are available so much earlier and can be seen and studied by so many more people attending the Show ; (2) that it is again possible to carry on the Inspection Judging on Tuesday (the first day of the Show) ; (3) it is possible for the Inspection Judges to have accurate knowledge of the actual yields of milk given by the animals placed before them.

The disadvantages of the new arrangements of holding the Milking Trials and Butter Tests prior to the opening of the Show are (1) that the cattle and herdsman are away from home at least one day longer ; (2) that the time between the Association getting possession of the Hall and the arrival of a large number of the cattle is perilously short—this year it was necessary to be prepared with all stands and fittings erected, pails and steam procured, &c., &c., within 36 hours of taking over the Hall—it was done by the energy, goodwill and experience of all concerned ; but who would like to tackle the job in a *new* Hall, with workmen inexperienced and all the fittings to find ? Of course, it could not be done ; (3) to avoid unnecessary Sunday work, it is necessary to have the sampling of the Milk and the saving of the milk from each individual cow for the Butter Tests on the second day of the Trials instead of on the first day as previously—this entailed a second stripping of the cows by the Stewards on Sunday night ; (4) the general expenses are increased, perhaps by about £100 by this new arrangement. The Council should carefully weigh these points before deciding on future arrangements.

The number of the Public attending the Show was very similar to that of 1921 which constituted a record, and again on the second and third days, the Show was uncomfortably crowded after midday.

The Herdsmen's comfort was this year added to by the refreshment contractors of the Hall providing them with tea and coffee in the early morning at reasonable charges.

As the Trials were taking place on Sunday, the cows were weighed as they arrived in the Hall, and the Council now have three years records of the weights of the animals in each class, with which to compare the weights of milk given by each in 24 hours.

The usual demonstrations in Soft Cheese Making, and Scone Baking, were held during the Show. Competitions in Butter-making and Junket-making were as popular as ever with the public who very readily purchased all the produce that could be sold and often called out, like *Oliver Twist*, for more.

During the Show an outbreak of Foot and Mouth Disease in close proximity to the London area was confirmed by the Ministry of Agriculture, and it was necessary to have all the cattle very closely examined by the Ministry's Experts before permission for them to return home could be given; however, it was possible to show a clean bill of health and an anxious time was terminated by every animal receiving its permit for the homeward journey and we felt real gratitude to the Ministry and its officials for their promptitude and courtesy.

The table on page 85 gives comparative details of the competitive entries at the Dairy Show with those of the last 12 Shows. It will be noticed that the total is now well over 10,000, a figure which helps one to realise the enormous amount of detailed work required to get the Exhibits properly staged, fairly judged, and satisfactorily returned to their respective owners, more especially when a change in ownership often takes place at the Show.

CATTLE.

Practically all the chief Dairy Breeds were again well represented, the most striking changes from recent years being 23 Ayrshires against a meagre two or none at all, and a reasonably well-filled class of Welsh Black Cows putting in its first appearance at the London Dairy Show.

The Council of the British Dairy Farmers' Association has decided that, for the 1923 Show, only officially recorded cows shall be eligible to compete; this will materially simplify the schedule of cattle classes. Previous to and during the Show, the question of Three-times Milking was a burning question, so enquiries on these points from the various herdsmen present were made and elicited the information shown on page 86.

The following table gives details of the twelve previous Shows:—

THE FOLLOWING TABLE GIVES COMPARATIVE DETAILS OF THE ENTRIES AT THE DAIRY SHOW WITH THOSE OF THE PAST TWELVE YEARS.													
	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1919.	1920.	1921.	1922.
Cattle	237	247	232	288	222	210	286	234	204	292	384	455	515
Milking and Butter Tests	245	224	236	264	213	209	265	167	198	334	492	614	760
Goats	48	72	84	75	81	105	110	85	116	115	109	101	91
Poultry	3,081	3,280	2,997	3,259	3,300	3,350	3,840	3,089	2,653	2,736	4,317	4,348	4,398
Pigeons	2,664	2,564	2,282	2,280	2,226	2,496	2,467	2,291	2,735	2,760	3,259	3,272	3,208
Poultry and Pigeon Appliances	65	50	37	—	—	—	—	—	—	—	—	—	—
Cheese	420	357	355	362	249	343	395	301	271	342	462	406	418
Bacon and Hams...	57	76	55	104	58	71	89	67	45	—	34	56	87
Butter	593	668	535	525	484	618	549	371	339	242	286	322	388
Cream	35	47	42	47	26	48	43	27	20	16	19	32	37
Skim-milk Bread, &c. ...	118	135	115	98	72	83	64	46	65	40	40	—	—
Honey, &c.	67	85	88	96	87	95	106	126	77	20	49	63	58
Bottled Fruits and Vegetables	...	—	—	—	—	—	—	—	—	—	45	25	26
New and Improved Inventions...	33	37	31	34	21	25	41	24	6	23	14	38	30
Roots	177	181	218	196	172	190	190	59	51	80	144	148	183
Butter-making Contests...	200	207	120	145	165	165	141	97	101	110	86	162	141
Milkers' Contests	135	132	126	122	153	119	137	85	82	77	80	98	44
Junket-making Contest ...	—	—	—	—	—	—	—	—	—	—	7	8	12
Colonial Produce	—	—	—	—	—	—	—	—	—	—	2	2	3
	8,175	8,362	7,553	7,895	7,529	8,127	8,723	7,069	6,963	7,187	9,829	10,150	10,399

Table showing various breeds, numbers entered, present, officially recorded, together with number of separate exhibitors and number of those owners in the habit of milking thrice daily.

Class No.		Entered.	Present.	Recorded.	Separate No. of exhibitors.	Owners milking thrice daily.
1	Pedigree Shorthorn Cow over 5 years	31	21	12	14	Nil
2	Pedigree Shorthorn Cow under 5 years	25	14	6	13	Nil
3	Dairy Shorthorn Heifer ...	27	14	7	9	Nil
4	Non-Pedigree Shorthorn Cow ...	22	11	9	17	Nil
5	Non-Pedigree Shorthorn Heifer ...	6	4	4	3	Nil
6	Lincoln Red Shorthorn Cow ...	12	8	8	4	Nil
7	Lincoln Red Shorthorn Heifer ...	7	7	5	3	Nil
8	Jersey Cow	37	23	23	17	Nil
9	Jersey Heifers (home bred) ...	17	11	11	8	Nil
10	Jersey Heifer (bred in C.I.) ...	23	11	11	8	Nil
11	Guernsey Cows over 5 years ...	8	6	5	6	Nil
12	Guernsey Cows under 5 years...	9	8	7	7	Nil
13	Guernsey Heifers	12	8	8	7	Nil
14	Red Poll Cows over 5 years ...	22	13	13	11	1
15	Red Poll Cows under 5 years...	14	10	10	8	Nil
16	Red Poll Heifers	23	11	11	7	Nil
17	Devons	7	6	6	3	Nil
18	South Devons	7	5	5	3	Nil
19	Ayrshire Cows	17	13	13	11	Nil
20	Ayrshire Heifers	10	10	10	6	Nil
21	Kerry Cows	12	8	6	5	Nil
22	Kerry Heifers	11	7	3	4	Nil
23	Dexter Cows	5	4	4	3	Nil
24	Dexter Heifers			(Can be collected)		
25	British Friesian Cows over 5 years	29	14	14	9	8
26	British Friesian Cows under 5 years	28	17	17	11	9
27	British Friesian Heifers	18	7	7	4	4
28	Welsh Black Cows	6	5	5	4	Nil
	TOTALS	455	276	240	195	22

The question of Three-times Milking in the Milking Trials and Butter Tests is a difficult and thorny one, but in view of the largely increased milk yields now being obtained, the Council is bound to face it and find some solution before next Show. In favour of Three-times Milking it may be said (1) that Cows giving over six gallons per day demand it and will probably pay for the extra labour; (2) that if arrangements are not made for such milking at the Dairy Show, it is more than likely that the best milkers will not continue to put in an appearance at the Dairy Show; (3) that it is actually cruel to keep such heavy milkers over 12 hours without relieving them. Against Three-times Milking it may be argued: (1) that at the present, the custom is not at all general amongst Exhibitors (Friesian Breeders excepted); (2) that if some classes are accorded the privilege of Milking three times per day, their comparison with other Breeds will be upset, and the competition for the existing Challenge Cups will be vitiated; (3) that the cost and difficulties of the Milking Trials and Butter Tests will be very considerably increased.

With over 20 years' experience of these Trials, the writer cannot remember any question arising in that time which is so fraught with complications and difficulties and one cannot help feeling that the Council is standing at the parting of the ways, and the decision to be taken must be one of great consequence to the future welfare of the Show and, in fact, of the whole Industry.

About 14 days before the opening of the Show, an inspection on the various owners' premises of a large proportion of the cattle was carried out by members of the Council and their representatives, in order to see that the rules and regulations were being complied with. This was a return to pre-war practice and generally welcomed by the competitors, though the long journeys it entailed, make it a costly operation to carry out.

By the generosity of Messrs. John Thornton & Co., two new Challenge Cups, value 50 guineas each, were added for competition in the Cattle Classes, one to the owner of the best group of three Pedigree Dairy Shorthorn Cows and/or Heifers, upon Inspection only, and one to the owner of the best group of three Pedigree British Friesian Cows and/or Heifers, and the Ayrshire Cattle Herd-Book Society of Great Britain and Ireland added the "Rowallan" Champion Cup for the owner of the best Ayrshire Cow or Heifer registered or eligible for registration with a number in the Ayrshire Cattle Herd-Book, gaining the greatest number of points by Inspection, in the Milking Trials and Butter Tests.

SHORTHORNS.

These, with 111 entries, as usual, formed the strongest section of the Show. It is noticeable that the Pedigree sections of these Classes show signs of considerable growth, both in number and in

yield of Milk, and they now surpass the records put up by the animals in the non-Pedigree Classes, a fact which should be very gratifying to the Breeders who have been so consistently striving for increased Milk Production by means of Pedigree Breeding. A few years back, the non-Pedigree Cattle were almost invariably ahead of the Pedigree Cattle in the Milking Trials.

In Class I for Pedigree Cows born before August 1st, 1917, the winner by Inspection (Mr. Denis Aldridge's "Merry Maid 5th") was also 2nd in the Milking Trials, with the good score of 139.1 points.

The two Judges, in giving reasons for their judgment, speak well of the quality of the prize-winners in all the three Pedigree Classes.

In the Young Cow Class the 1st and 3rd by Inspection are in the same order in the Milking Trials, also, in the Heifer Class, the Duke of Westminster's "Rare Rosette" takes first place, both for Inspection and Milking Trials; thus the judgment of the Inspection Judges seems to have been very closely confirmed by the results obtained in the Milking Trials.

Again, in the classes for non-Pedigree Cows, the judgment of two other Judges for Inspection was largely confirmed by the results of the Milking Trials, thus tending to show that the day is past when good-looking cows of a beefy type can win at the Dairy Show.

The Judge of the Lincoln Red Shorthorn Cows and Heifers was slightly disappointed with the numbers present, but says that they were typical Dairy Cattle (not beefy), with the cow class to be preferred to the heifers.

In the Milking Trials, Mr. John Evens swept the deck, the first prize winner "Ruby Spot 14th" making the excellent score of 150.6 points. The Lincoln Reds eventually won the highly-prized Bledisloe Trophy for the best exhibit of good all-round Dairy Cattle.

Of the Jersey Cow Class, the Judge writes that it was perhaps one of the best classes seen at Islington for many years. It was headed by Mrs. Evelyn's English-bred "Dahlia IV," which cow was also first in the Milking Trials with the score of 109.3 points.

Both the Island-bred and Home-bred Classes for Jersey Heifers were extremely good—the winner in the Milking Trials making the excellent score of 92 points.

The Class for Guernsey Cows born previous to August 1st, 1917, was hardly up to the high standard set in recent years, though the winner in the Milking Trials put up the excellent score of 120.08 points.

The Class for Young Guernsey Cows was a very strong one and contained some of the very best animals in the Breed. The Heifer Class also, was extremely good.

The Red Polls made a highly creditable display numerically and in other respects, and each of the female classes would have been a

credit at any Show, Royal or County. The Young Cow Class was hardly so strong as the older one, but the winner, Mr. Dimmock's "Shotford Star Duchess 121st" was of outstanding merit. The Heifer Class again was one of real merit and results in the Milking Trials were good and even throughout. While the bulk of the Red Poll entries still comes from the Eastern Counties, it is remarkable that numerous entries were received from all over the country, which would seem to prove the increasing popularity of this hardy dual-purpose breed.

There were only seven entries in the class for Devon Cows, of which six were present, a reasonably good class considering the fact that this breed has only so recently put in an appearance in the Dairy World. The winner in the Milking Trials gave six gallons and scored 126.2 points.

The South Devons had seven entries with five present. Mr. W. Hunt's "Netton Lily" won on Inspection, and was eventually first in the Milking Trials, with the excellent score of 142.4 points.

Perhaps the most remarkable feature of the Show was the fine Exhibit of Ayreshire Cows and Heifers. Last year there were only four entered, with two present. This year, 17 were entered in the Cow Class, with 13 present, and in the Heifer Class, 10 were entered and all present—quite an outstanding record for the Breed, and they were greatly admired as Dairy Cattle. The winner on Inspection was Mr. Alex. Allan's "Mabel 2nd," which was also first in the Milking Trials with 120 points—quite a creditable display by this excellent Dairy breed, considering the distance from their home. For many years they were conspicuous by their absence, and it is a special pleasure to welcome the Breed back to the London Dairy Show. The Judge speaks highly of their quality and general aptitude for Milk production.

The entry of Kerries was hardly up to the high standard of last year, but the quality was good with fair yields in the Milking Trials. The Heifer Class was an excellent one with 11 entries of high quality. Only five Dexter Cows were entered and the Heifer Class had to be cancelled.

The show of British Friesians was again remarkable, and excelled anything yet seen at the Dairy Show—with an average of 25 entries in the three Classes for the Breed, they exceeded the numbers per Class of even the Shorthorns, but rather a large proportion were absent. The animals had remarkable size and milk-producing power, and the udders showed a distinct improvement on those of previous years.

The Aged Cow Class again made a sensation by winning the Barham Challenge Cup, the Shirley Cup, and the Spencer Cup, with three separate cows, all of which scored over 150 points and so were nearly 50 per cent. above the standard allotted to the breed.

The Young Cow Class was an extraordinarily good and strong one—heavier milking and better young cows could scarcely be found. Here again the points won in the Milking Trials were excellent, the winner running the older cows very close. Heifers were a very good collection, the breed-type, strength, and dairy qualities, being most pleasing. In the Milking Trials, the Friesian Heifers were not remarkable, being beaten on points by the Ayrshire and Jersey Heifers.

Welsh Black Cows put in their first appearance at the London Dairy Show with an entry of six, five being present. Many people were surprised to see what a good show of Dairy qualities these cattle can put up. As the Judge points out in his report, it takes time to get the best animals of the breed ready for the Dairy Show and it is more than likely that this Breed will make a better Show in some future year, though even this, their first year, they were able to do very creditably in the Milking Trials, the winner scoring 109.9 points with a yield of nearly five gallons of fairly rich milk.

The Classes for Single and Pairs of Cows of any Breed or cross in Milk were reasonably well filled with good dairy animals promising abundance of Milk, but again, several of these animals were unsuitable for the purpose for which these cows are invited to appear at the Dairy Show, viz., for use in the Milkers' Contests, and the Council will be invited to consider whether it would not be wise at the next Show to hire cows for this purpose and to make sure that all that come are entirely suitable for aspirants to honours in the Milkers' Contests to try their hands on.

BULLS.

Only Bulls of proved Milking Pedigree are allowed at the Dairy Show and the entries of eight in the Class for Dairy Shorthorn Bulls over two years old and nine in the Class under two years, must be considered satisfactory, the quality in general was good and dairy characteristics were more in evidence than in some past years.

There were five entries in the Class for Young Jersey Bulls and they were so equal that the Judge felt compelled to ask for a Second Prize.

The Class for British Friesian Bulls born on or after August 1st, 1920, brought four entries, of which, three were present, and the Judge considered them a really wonderful trio of young bulls.

In the Class for Bulls of any pure Breed (not eligible for the preceding classes) there were three Red Polls (with two present), two Guernseys, and one Ayrshire, and one older British Friesian Bull. Silver Medals were awarded to each of the four sections in the Class, the respective winners being considered fully worthy of the honour by the Judge of each Breed.

The Robert Mond Challenge Shield and the special prize of £10 offered in connection therewith, found contestants for the first time, though the same has been on offer for three previous shows. The purpose of this Trophy and special prize is to encourage the judging of Bulls by the Milk and Butter-fat yielding capacity of the Bull's progeny, which must, in the long run, be the main criterion by which Dairy Bulls are finally judged.

It is generally the practice in this country to kill off the Dairy Bulls before their capacity as good producers of high-yielding dairy stock has been proved, and the Council of the British Dairy Farmers' Association are most grateful to Mr. Robert Mond for providing this special encouragement to keep the right Bull for a sufficient number of years to test the Milk and Butter yield of his progeny.

The exact conditions of the competition should be studied from time to time in the Schedule or Catalogue, but it may here be stated that the purpose is to reward the owner and breeder of the Bull which shall prove itself the best getter of high-yielding progeny as shown by the results of the Milking Trials and of the records of the official Milk-Recording Societies.

There were five entries, but in three instances only were the required number of animals present. The winner of the Robert Mond Special Prize was Mr. John Evens by his Lincoln Red Bull "Burton Excellence" (7396), and the second prize was awarded to Major C. Randolph Dudgeon for his Ayrshire Bull "Dalfible Braw Lad" (15840).

GOATS.

Both the Judge and the Steward of the Goats were well satisfied with the exhibition of Goats. Their quarters in the Annexe at the end of the Gilbey Hall are not ideal, but, perhaps, the best that can be done under the circumstances, and the Goat family is happy in being self-contained and to themselves, with a Judging Ring which gives greater satisfaction than it is possible for the Cows. For the first time Kids were barred from the Dairy Show, which left more room for the adult classes and is in line with the fact that Calves also are barred.

Holding the Milking Trials before the opening of the Show was generally approved, but a request is made that Goats may be permitted to arrive up to 5 p.m. on Saturday; a similar request comes from a few of the cattle exhibitors—perhaps a compromise extending the time of arrival up to 3 p.m. on Saturday might be arrived at. The difficulty is that one is never sure of the absentees until after closing time and then all animals have to be "moved up" to preserve the symmetry of the Show and "moving up," after stripping out on Saturday is objected to. The difficulty, it is admitted, is not so great with the Goats as it is with the Cows.

The Goats this year surpassed all previous Dairy Shows in quality and on the whole approached a uniformity never seen before. They were so good that the Judge was inclined to doubt the need for the infusion of new blood into the British Goat family, but possibly the constitution may be improved without detracting from the appearance and milking qualities.

In the Goatlings, the Class for British Saanen stood out as the best of this year's Show.

The Toggenburg Classes caused slight disappointment and may possibly be improved by the infusion of new blood now allowed to the British Goat Society.

Anglo-Nubians are hardly holding their own and some of the good milkers tend to lose the Nubian type which is wanted, along with improved milking qualities.

In the Any Other Variety Class, the winners were all over milking animals with great bags of proper texture, and as events proved, they were great yielders, though for Inspection, they appeared somewhat lacking in quality compared with others.

All previous records in the Milking Trials were beaten by Miss Pope's "Problem of Bashley" putting up an average of 11·7 lbs. for the two days, though kidded on March 2nd, but even this high yield was eclipsed by Mrs. Abbey's "Didgemere Dulcie," a first kiddier, in milk since April 13th, producing an average of 12·6 lbs. for the two days. Bravo Goats, you'll soon be Cows.

CHEESE.

In general, there was a very large entry of Cheese and the available space was taxed to the uttermost, double tiers having to be used where never before and the spaces for gangways were much restricted which adds difficulty to staging and getting the cheese away. For the first time it was necessary to stage some of the harder cheeses one on top of the other.

Stiltons (6 Cheeses).—A large entry and most of the cheeses exhibited were of excellent quality, the prize winners were blue and ripe and of good colour. Very little fault could be found with the remainder except that they were a little backward and not ripe enough for Show purposes. All the winners came from the Melton Mowbray district.

The Judge notes a very great improvement in this class and one wonders whether this is due to improved methods of milk production, as undoubtedly there is a great improvement in this direction amongst forward-looking producers.

Stiltons (36 Cheeses).—With 10 entries. Here again, the Judge notes a good class and all the entries came from the Melton Mowbray district. The first prize lot were excellent—blue-veined, buttery in texture, and of excellent flavour. The second and third were of fine quality, but a little backward.

Cheddars. The three classes were well filled and attractively staged for inspection. The prize lots in each of the classes were excellent, but following them there was a considerable number of exhibits which could only be classed as useful and hardly up to the high standard usually associated with this great National Show.

The chief defects running through the unplaced exhibits were weakness and openness of texture and the general appearance was not too attractive. The cold, sunless and wet summer would account for the former defects, but for the latter (the get up and general appearance of the cheese) we must look for improvement solely on the part of the makers themselves. The "Viking" Challenge Cup for the maker of the best hard-pressed cheese, residing in any part of the United Kingdom went to a Scotch exhibitor in the Cheddar (4 Cheeses) Class, and the Hanson Challenge Trophy for the best factory-made Cheese of any pressed variety (excluding Stiltons and Wensleydales) was also won by a cheese of Scotch origin and, in fact, the Scotch cheeses were forward in large numbers and of very fine quality. Wake up, Old England!

Colonial Cheddars.—The 21 entries were drawn from Ontario 8, New Zealand 8, South Africa 3, New South Wales and Queensland 1 each, and the Judge reports that uniformity of flavour was an outstanding feature, in spite of the varied conditions of manufacture, transport, and storage. The good flavour was very creditable to the Colonial Cheese-makers.

With the texture of all the entries so uniform, the deciding of the awards was a question of considerable difficulty. In the colour of the cheese, there were different shades and although defects were noticeable, the shades of colour may be said to meet the demand of the markets throughout England. A sub-class for cheese made from Pasteurized milk is suggested as being of educational and commercial value.

Cheshire Cheese.—A good entry and the exhibits were generally of excellent quality and mostly in prime condition. The Judges pay special tribute to the winning lots in the 20-Cheese Class and also to that in each of the smaller lots, making special mention of the keenness of competition in the Class for White Cheshires.

Leicester Cheese.—This class brought a better and larger entry than usual, with the first-prize winner correct in every way, the second not quite correct in colour, and the third a fine exhibit, but unripe.

A number of those not mentioned were discoloured, which is a common fault in this variety.

Lancashire Cheese.—Again a very small entry, but the quality of exhibits was very good.

Derby Cheese.—A fair class only, with few entries. The prize-winners and Reserve were good, but not outstanding. The Judge complains that exhibits in this class were too close in texture and

in this respect resembled Cheddar in texture and flavour, which is not desirable.

A new Class for Factory Cheese was quite a success, with good entry. First prize went to a Scotch exhibit of the Cheddar variety. The second, also excellent, was manufactured in Shropshire and the third in Notts. The class created a large amount of interest amongst cheese-makers generally. Some of the lots not mentioned had a pronounced "factory" flavour, which is due to tainted milk, and future exhibitors would be well advised to guard against this fault which can easily be avoided.

Double Glosters brought a good entry of nine exhibits, and the quality, on the whole, was very fine.

Single Glosters had only four entries and were not up to the standard of the Double Gloster's.

The Class for Caerphilly Cheese was small, with 8 entries, but the produce on the whole was good, especially so with the prize-winners, the texture and flavour being excellent. With some of the others there was a lack of similarity of flavour through the one exhibit.

For *Wensleydales*, the class was a moderate one only, with 8 exhibits, and not nearly so good as at many Dairy Shows. The first-prize cheeses were of fair quality, but unripe, and the same remark applied to the second prize. Makers complain that the season had not been favourable, being too cold and wet.

Of the Classes for Smallholder Pressed Cheeses, quick-ripening and long-keeping, the Judge reports that some of the quick-ripening flavours were inferior, but the exhibits on the whole were good. These classes are popular, because they give people with small dairies and little plant a chance to show what good cheeses may be made with limited quantities of milk. In a few cases, the quick-ripening variety was entered in the long-keeping class and *vice-versa*. The Judges combined to award the "Walker" Challenge Cup and the McWilliam Silver Fruit Dish for the best Exhibits in these Smallholder Classes and the results obtained seem to have given general satisfaction.

The two classes for Small Pressed Cheeses (open to Pupils who have attended County Travelling Cheese Schools) were both good, with flavour and texture excellent; the cheeses were also well finished, so that the Judging was very difficult.

The Inter-County Competition for the best collection of Smallholder Cheeses made by the persons who have received instruction in Cheese-making at a County Council Travelling School during 1919-1922, was rather disappointing, the number of entries being less than previously, but the first- and second-prize lots were exceptionally good, and all the varieties entered were of uniformly good quality.

The Class for Cream Cheese was a good one and most of the

exhibits were excellent in flavour and well packed. The cheeses in this class varied in weight from 2 to 8 ozs., and the Judge suggests that in future the exhibits should be of uniform size, say 4 ozs. each.

The exhibits in the class for "Unripened Soft Cheese," other than Cream Cheese, made direct from milk, varied very much, but the class contained some excellent exhibits.

BACON AND HAMS

In this section of the Show, there were no less than 90 more sides of bacon to stage than at the last Dairy Show, and new arrangements had to be made to hang them. Again in the Inter-Breed Competition, only four of the Breed Societies entered, the Berkshire Pig Society coming in for the first time, and the Gloucester Old Spots Society dropping out, though it gained second honours last year. A full report of this competition will be found in another part of this Journal, but it may be mentioned here that the Large Black Pig Society again won premier honours, the Berkshire Society being first on points until the bacon was cut and Seedy-cut found, for which a large deduction of points had to be made.

At the request of the National Pig Breeders' Association who, on principle, object to the above Inter-Breed Competition, an extra class for two pigs from individual breeders was added this year and it was hoped that the N. P. B. A. would support it in large numbers, but their members only put up four entries. The Tamworth's, led by Mr. R. Ibbotson, of Dorridge, near Birmingham, were a good first in this class.

Of the English bacon in general, the Judge reports that it was exceptionally fine, and breeders and curers are recovering rapidly and turning out bacon of pre-war quality. Hams also were good, but attention should be given to make a good *Matured* English Ham, those shown being very new and similar to an Imported Ham.

There were eight entries in the class for Colonial Bacon, four of which came from South Africa, 2 from Canada, and one each from New Zealand and New South Wales. The quality throughout was reasonably good.

BUTTER.

Good entries characterised the 2-lb. Classes and it is evident that this section is regaining its pre-war popularity. The class for Butter Slightly Salted, the produce of Channel Island cattle and their crosses contained some excellent exhibits, including the cup-winner for the best of the 2-lb. exhibits, which was excellent for its flavour, texture, clear colour, and well-shaped bricks. A few of the exhibits were hardly up to Show standard, being poor in flavour and open in texture.

With only a few exceptions, the class for 2 lbs. of Butter (free from salt and the produce of cattle other than the Channel Islands cattle and their crosses) contained exhibits of good flavour, but a large number were weak in texture and contained too much moisture. The general make up was not as good as it should have been. Again, in the corresponding class, but slightly salted, another Judge complains that with the exception of the prize-winners, which were of outstanding quality, the exhibits were disappointing, being faulty in flavour, open in texture, and often not uniform in colour.

The class for 2 lbs. of Butter made from Scalded Cream only was an excellent one, in which the exhibits reached a very high standard in quality, the first prize being about perfect.

There were comparatively few entries in the classes for Boxes of 24 lbs. of Butter, but the texture and flavour of most of the exhibits was distinctly good and the general get up of the Butters satisfactory.

Only one competitor entered for the Competitions in Fancy or Ornamental Design in Butter, but she was able to make a display which was attractive to the public.

COLONIAL BUTTER.

The two classes for Colonial Butter, Salted and Unsalted, brought a total entry of 112 exhibits.

The Salted Class is reported as a very level exhibit, with few lots of outstanding merit, the general average being fair commercial butter of a somewhat mediocre description. The three prize-winners were extraordinarily level and it was difficult to judge between them. All three came from Queensland, though from different Co-operative Dairies. The packing in this class was uniformly good and not unduly expensive.

The flavour in the Unsalted Class was of a very high order, no less than 21 exhibits gaining full marks. As to texture, only 13 gained full marks, there being too much moisture in most of the exhibits. Colour, generally speaking, was rather too high. Packing throughout was very good, half the exhibits gaining full marks and the 1st Prize was perfectly packed.

CREAM.

The competition in the class for Clotted Cream was very keen. Quite a number of the samples staged were excellent in flavour and good in colour. Special attention had been paid to finish. There were only one or two weak exhibits and the first-prize winner was outstanding in flavour.

The exhibits in the class for Cream other than Clotted were not so uniform in quality. The flavour, generally, was good, excepting two samples which had gone sour and a few inclined to be too thin.

BOTTLED FRUITS, VEGETABLES, AND JAMS.

The number of entries in the various sections left much to be desired, but the Judge reports that he has never been called on to judge such a perfect lot of specimens, all the bottling being of a very high grade, and the jam also extremely good.

The demonstrations were exceedingly popular and well attended.

HONEY, &C.

Notwithstanding the disastrous season there were numerous entries of excellent quality in most classes, more especially amongst the run honey, and it was a pity that two exhibits of very fine quality had to be disqualified, owing to their being in the wrong class, for which there can be no excuse, as the instructions are clearly set out in the schedule and a colour-gauge glass can be obtained for 1s. The wax was excellent and staged in most useful shapes. The Class for new ideas connected with Bee-keeping produced only one entry, viz., for an improved Bee-escape.

The Colonial Honey (4 entries) was good in appearance, but lacking in flavour.

ROOTS.

The Mangolds were a splendid lot outwardly, but cut badly. The Swedes were excellent, both as to appearance and cutting, but several were coarse in neck and crown. Turnips were inclined to be soft and woolly on cutting. The Judge attributes all the above-mentioned faults to the abnormally wet season. Kale was extraordinary in size, but rather coarse for feeding purposes.

The Collections of Roots, &c., were excellent in every way. Some of the root exhibits could be better trimmed and staged, as the Judge found several dead leaves on some lots.

COLONIAL DAIRY PRODUCE.

The class for a collection of Colonial Dairy Produce, to include Bacon, Dead Poultry, and Eggs, brought three fine exhibits, which considerably added to the general interest of the Show.

NEW INVENTIONS.

This class was exceptionally large, with 30 entries, the details of which are dealt with by the Judge in another part of this Journal.

JUNKET-MAKING CONTEST.

The whole competition was very close, especially so amongst the prize-winners, but the whole class was worthy of mention. One or two did not pay sufficient attention to washing up and neatness in arrangement of utensils.

The work of the Champion Junket-making Class was very fine throughout and done in quick time.

BUTTER-MAKING CONTESTS.

The work in all these classes was quite up to the average of former years, the prize-winners throughout doing excellent work, and in the class for first prize Dairy Show winners of 1922, the standard was so high that the Judges considered it worthy of special mention, and they found the attention to detail and cleanliness was extremely good. The general keenness to do good work was particularly gratifying.

The Champion Butter-making Contest produced an extremely keen competition, and excellent work was done.

MILKERS' CONTESTS.

These were hardly so well patronised as in some past years and the class for Boys under 16 years had to be cancelled; that for Men and Boys over 16 years was not so full as the one for Women and Girls. The work done throughout was good and the public showed as usual a keen interest in the contests.

COW-JUDGING COMPETITION.

This was provided for the members of the Daily Mail Young Farmers' Clubs and took the form of an Inter-Club Competition, three representatives of each club competed on behalf of his or her club. Three cows, representative of their breeds, Shorthorn, British Friesian and Guernsey, were paraded before the competitors for 10 minutes each lot and the competitors made notes of their excellencies and deficiencies and then each had a two-minute interview with the Judges in order to explain how and why they had placed the various animals. The Judges duty was to place the boys and girls in their order of merit as Judges of the cattle placed before them. It was noteworthy that the girls in general surpassed the boys, possibly due to their natural aptitude for attention to detail. Those who were privileged to hear the answers given to the Judges were much surprised and pleased with the skill in judging cows shown by all the competitors, and it was quite evident that some really first-class work is being done by these Young Farmers' Clubs. The Challenge Cup presented by "Modern Farming" was won by the Guildford (Surrey) Calf Club.

There is no doubt that this class of competition will need extending in future years and already arrangements are being started to hold an Inter-College Competition on similar lines in 1923.

THE DAIRY SHOW MILKING TRIALS OF 1922.

By T. J. DRAKELEY, Ph.D., M.Sc., F.I.C., F.C.S., M.I.M.E.

THE importance of the Milking Trials increases steadily at each succeeding Show, and annually this report rightly lays considerable emphasis on this point. It is, indeed, impossible to over-estimate the value of the competitions in promoting the general welfare of dairy farming, and of the important data which the Association has collected during the period since 1880. The keen enthusiasm of the competitors augurs well of the real and successful attempts to obtain the maximum production of milk of the highest quality from cattle of the finest stock.

Again it has to be reported that the record number of entries and actual competitors established at the last show has been exceeded at the Dairy Show of 1922.

Number of Entries.—447 cows and heifers and 43 goats, compared with 341 cows and heifers and 34 goats in 1921.

Number of Competitors.—For a variety of practical reasons the number of animals actually present in the showyard is always less than the number of entries. Indeed, it would have been absolutely impossible to exhibit the 490 animals in the space available at the Agricultural Hall. In 1922, 253 cows and heifers and 35 goats competed, as against 220 cows and heifers and 30 goats in 1921. The number of entries and competitors in each of the classes of cows and heifers is given in Table I.

Number of Samples Analysed.—576 in 1922, compared with 500 in 1921. In this connection it is interesting to refer to an early report by the Association's Consulting Chemist, Mr. F. J. Lloyd, F.I.C., F.C.S., stating that "no one unacquainted with chemical analysis can realise the difficulty of making eighty-eight analyses of milk in twenty-four hours" (B.D.F.A. JOURNAL, 1887, Volume III, page 83). It is a tribute to my colleague, Mr. F. J. Lloyd, and the precise and remarkable organisation he has evolved during his long experience of the Milking Trials to report that in 1922, 576 analyses were completed within 36 hours of the first sample entering the laboratory. Furthermore, every result is subjected to the closest scrutiny. Any

peculiarity in the values is noted and then verified. Sometimes a second analysis of a sample is made to confirm the previous analytical result. In fact, despite the expedition with which the work is necessarily carried out, the highest degree of accuracy is maintained throughout the analytical operations.

It would also appear that the limit of the holding capacity of the Agricultural Hall will be reached long before the task set the Milking Trial Judges becomes insuperable.

Number of Breeds represented.—As entries in the class of Welsh Black Cow came forward this year, twelve breeds were represented in the showyard. The highest number of breeds appearing at a previous show was eleven in 1921.

Highest Points gained by a Cow.—A British Friesian Cow obtained the highest number of points (158·3) in the Milking Trials in 1922. The points are far below the record (173·8) set up in 1921 by a member of the same breed.

Highest Milk Yield.—The highest average yield of milk (75·7 lbs.) in 1922 was given by a British Friesian Cow, the record being held by a cow of the same breed which gave an average of over 80 lbs. in 1921.

Sampling and Weighing the Milk.—At the 1922 Show, an innovation was made by holding the Milking Trials on the Sunday and Monday previous to the day of opening to the public. The weight of the morning and evening milk was determined for each cow, heifer and goat on Sunday and Monday, but samples for analysis were not taken until Monday morning and evening, whereas in previous years the samples were collected on the first day of the trials.

The Results.—A reference to Table II shows that there was a drop in the percentage of animals reaching their respective standards, although the standard points for the Jersey and Dexters have been lowered. If the new classes (9, 10, 20) appearing for the first time this year are deducted from the totals, it will be found that only 51·9 per cent., compared with 55·7 per cent. in 1921, attained the requisite award of points. Furthermore, it is very disappointing to find on reference to Table VI that 56 animals gave milk deficient in fat, and that the milk of 60 cows was below standard in quality. The Milking Trial Judges view the matter seriously and are inclined to regard the failure of 60 animals out of 253 specially selected for the show with a certain vague suspicion. It is particularly to be noted that no aspersive statements are intended, but it is felt that the matter cannot be lightly dismissed by an Association having as one of its principal objects the encouragement of the breeding and rearing of the highest type of dairy stock.

In contrast with the above, it may be observed that the Guernseys have now attained the eminent and enviable position of having lost no points whatever in recent years for poorness in the quality of the milk (see Table VI).

The points gained in the Trials and on which the prizes and the majority of the cups were awarded were on the basis of former years, namely :—

One point for every 10 days since calving, deducting the first 40 days, with a maximum of 12 points.

One point for every pound of milk, taking the average of two days' yield.

Twenty points for every pound of butter fat produced.

Four points for every pound of solids other than fat.

Deductions.—Ten points for each time the fat is below 3 per cent.

Ten points for each time the “solids other than fat” are below 8·5 per cent.

NOTES ON THE CLASSES.

Class 1. Pedigree Dairy Shorthorn Cow over 5 years old.—Entries 31: Present 20. The great improvement reported last year was thoroughly maintained, and the average points gained by the class increased from 103·9 in 1921 to 107·7 in 1922. The percentage of animals attaining the standard points has decreased slightly from 66·6 to 60 in 1922. The first prize and Desborough Cup were easily won by Mr. F. W. Morley's “Cockerham Purity” (No. 19), with 152·2 points. Mr. D. Aldridge's “Merry Maid 5th” (No. 8) won the second prize with a score of 139·1 points, and, for the second year in succession, was reserve for the Desborough Cup.

Class 2. Pedigree Dairy Shorthorn Cow over 3 and under 5 years old.—Entries 25: Present 12. The number of entries was the same as last year, but only 12 cows appeared in the showyard, compared with 20 in 1921. The first prize and the special prize of £10 offered by the Shorthorn Society in conjunction with the Dairy Shorthorn Association for the cow exhibited in Classes 1 and 2 were obtained by Mr. E. A. Smith's “Longhills Melody” (No. 54), with 116·1 points. The second prize in the class was awarded to Capt. A. S. Wills' “Thornby Ringlet 3rd” (No. 47), with 115·5 points.

Class 3. Pedigree Shorthorn Heifer.—Entries 27: Present 11. A welcome improvement was noted this year in the animals present at the Show. In 1921 only one-third of the animals attained the standard points for the class, but this year only three out of the eleven failed in that respect. The average points (72·1) for the class show a creditable increase over the averages of 60·9 and 61·6 for

1920 and 1921, respectively. The first prize was secured by the Duke of Westminster's "Bare Rosette" (No. 57), with 83.1 points, whilst the second prize was awarded to Capt. T. Allen-Stevens' "Thurnham Ringlet 12th" (No. 70), with 82.5 points. The two special prizes offered by the Shorthorn Society in conjunction with the Dairy Shorthorn Association were respectively obtained by the above two heifers.

Class 4. Non-Pedigree Dairy Shorthorn Cow.—Entries 22 : Present 11. This class failed to maintain the improvement noted last year; only six of the eleven cows exceeded the class standard, so that the percentage of cows above that standard fell to the level of 1920. The average points (108.1) gained by the class is considerably lower than the figure (117.5) for 1921, and is even lower than the average (111.8) for 1920. The first prize and the Dairy Shorthorn Association's special prize were won by Mr. W. H. Nelson's "Lady Wilson" (No. 97), with 129.8 points. The second prize was awarded to Mr. N. Hardman's "Dolly" (No. 93), with 117.2 points.

Class 5. Non-Pedigree Dairy Shorthorn Heifer.—Entries 6 : Present 4. It is to be regretted that the entries in this class have again decreased, and of the animals present only two reached the class standard of 73 points. Mr. J. L. Shirley's "Pride" (No. 108) easily secured the first prize with 88.2 points, the second prize being obtained by "Elmscott Buttercup" (No. 111), with 73 points, exhibited by Messrs. A. Stapleton & Sons, Ltd.

Class 6. Lincolnshire Red Shorthorn Cow.—Entries 12 : Present 8. Last year the average score (105.3 points) obtained by this class was a record, but the remarkable and praiseworthy improvement was so well-maintained that a new and most creditable record was set up this year with an average of 113.2 points. The average weight of milk (57.2 lb.) given each day also constituted a record for this class (see Table V).

The representatives of the breed were not of equal calibre. One cow obtained only just over one half of the points awarded to the prize cow, and three of the eight cows lost points owing to low percentages of fat. The first prize was won by "Burton Ruby Spot 14th" (No. 119), with 150.6 points, and the second prize by "Burton Red Rose 4th" (No. 116), with 131 points, both animals being exhibited by Messrs. John Evens & Sons.

Class 7. Lincolnshire Red Shorthorn Heifer. Entries 7 : Present 5. This class was not so well represented as last year, and the average points fell from 88.1 in 1921 to 71.4 in 1922. Two of the five animals lost points owing to a low percentage of fat in the morning's milk. The prizes offered by the Lincolnshire Red Shorthorn Association were awarded as follows:—First, Messrs. John Evens & Sons' "Burton Hagnaby Gift 2nd" (No. 127), with 82.4 points; Second,

Lt.-Col. Sir A. G. Weigall's "Langford Damsel 15th" (No. 124), with 82.1 points; and Third, Messrs. John Evens & Sons' "Burton Patchy 4th" (No. 129), with 70 points.

Class 8. Jersey Cow.—Entries 39: Present 24. There was a large number of competitors in this class, but the results were again disappointing. Although the Association, this year, lowered the standard to 90 points, only five cows secured awards above that total. If the old standard (95) had been in force, only three of the twenty-four cows exhibited would have reached it. There is, however, consolation in the fact that the average number of points obtained by the breed advanced from 76.3 in 1921 to 79.7 in 1922, and that only one cow had points deducted through a deficiency in the quality of the milk (see Table VI). The first prize was won by Mrs. Evelyn's "Dahlia 4th" (No. 154), with 109.3 points, and the second prize by Mr. G. H. Lindsey-Renton's "Wootton Alexandra" (No. 159), with 101.8 points.

Class 9. Jersey Heifer (Bred in Great Britain or Ireland).—Entries 17: Present 8. As this was the first appearance at the Show of representatives of this class, the results were most creditable. Every animal obtained points exceeding the minimum standard, and not a point was lost by the class owing to a deficiency in the quality of the milk. The first prize was obtained by Col. L. G. Gisborne's "Thyme" (No. 179), with 92 points, and the second prize by Mr. H. C. Pelly's "Wotton Boveau" (No. 177), with a total of 83.3 points.

Class 10. Jersey Heifer (Bred in the Channel Islands).—Entries 23: Present 4. This was also the first appearance of this class, and whilst the absentees are surprisingly numerous, the animals formed an exhibit of high merit. One animal failed to obtain the standard points (60) for the class, but the average score (66.8) was satisfactory. No points were lost owing to poor quality milk. Mr. J. H. N. Roberts' "Duchess of Carita 4th" (No. 190) secured the first prize with 74.7 points, and the second prize was awarded to Major J. R. Warren's "Britannia's Surprise" (No. 208), with 74 points.

Class 11. Guernsey Cow over 5 years old.—Entries 8: Present 6. The exhibits in this class did not compare particularly favourably with those of last year. The average points for the class decreased from 92.8 in 1921 to 88.4, whilst half the number failed to reach the standard points for the class. There is, however, one special feature to be noted, and that is, the consistent manner in which the Guernseys have produced milk of the finest quality. A reference to Table VI shows that for many years the Guernseys can boast of losing no points for deficiencies in the quality of the milk. The first prize and the Stagenhoe Challenge Cup were easily won by Mr. A. M. Monteath's "Polly 2nd" of Hillside (No. 217), with 128.1 points, and Mr. O. P. Rubeck's "Gipsy of Tregonning" (No. 210) obtained second prize with 99.3 points.

Class 12. Guernsey Cow over 3 and under 5 years old.—Entries 9 : Present 7. The points awarded in this class call for particular comment. The first prize was won by Mr. A. T. Loyd's "Christine's Duchess" (No. 221), with 78.9 points, closely followed by Mr. J. B. Body's "Lynchmere Rosy" (No. 223), with 78.5 points. It may be observed that Mr. A. T. Loyd's "Christine's Duchess" gave, at the evening milking on the Monday, milk containing 7.3 per cent. of fat, which was the highest percentage recorded at the Show. The result was so high that the writer felt somewhat doubtful about the value, but a scrutiny established the accuracy of the analysis.

Class 13. Guernsey Heifer.—Entries 11 : Present 5. This class as a whole was not so well represented as last year. One heifer obtained points below the standard. Lady Ludlow's "Myrtle Lady 2nd of Newgrove" (No. 227) obtained the first prize, with 78.8 points, and the second prize went to Sir James Remnant's "Emblem's Bluebell" (No. 229), with 67.8 points.

Class 14. Red Poll Cow over 5 years old.—Entries 22 : Present 14. Whilst the results are decidedly better than last year, there is still room for further improvement. The average points for the class increased from 83 in 1921 to 91.5 in 1922, but the number of cows attaining points above the standard was only four. In addition five cows lost points for the poor quality of their milk. The first prize was awarded to Mr. C. Pilkington's "Harefield Ruth" (No. 253), with 122.6 points, and the second prize to Lt.-Col. Sir M. R. Burrell's "Knepp Primrose 4th" (No. 242), with 119.1 points. The special prize offered by the Red Poll Cattle Society for the Cow gaining the most points by Inspection and in the Milking Trials was secured by "Knepp Primrose 4th."

Class 15. Red Poll Cow over 3 and under 5 years old.—Entries 14 : Present 10. Last year a special mention was made of the excellence of this class, but this year provided a complete reversal. The average points fell from 95.1 in 1921 to 76.4 in 1922, whilst four cows failed to obtain standard points, and six cows lost 100 points for poorness in the quality of their milk. The first prize was awarded to Mr. F. W. Leach's "Meddler Merrythought" (No. 272), with 109 points, and the second to Sir A. E. Bowen's "Gressenhall Margate" (No. 262), with 97.4 points.

Class 16. Red Poll Heifer.—Entries 23 : Present 10.—The heifers in this class gave disappointing results. Reference to Tables II, III, IV, and V. show that the figures are lower than those obtained last year. The first prize was secured by "Hutton Dahlia 2nd" (No. 294), with 80.3 points, and the second by "Hutton Retreat" (No. 296), both animals being exhibited by Mr. M. C. Pilkington.

Class 17. Devon Cow.—Entries 7 : Present 7. The exhibits in this class obtained points which were only slightly below the very

high figures established in 1921. Five out of the seven cows exceeded the class standard (90) and the average for the breed was 98.7 points. Mr. N. D. Lupton's "Wynford Molly" (No. 300) was awarded first prize with a score of 126.2 points, and Mr. J. H. Chick's "Wynford Laburnum" (No. 302), second prize with 111.1 points.

Class 18. South Devon Cow.—Entries 7: Present 5. The standard of the exhibit of this breed was almost identical with that of 1921. The first prize and special prize offered by the South Devon Herd Book Society were awarded to Mr. W. Hunt's "Netton Lily" (No. 307), with the excellent score of 142.4 points.

Class 19. Ayrshire Cow.—Entries 17: Present 13. The entries and the number present in this class have improved very considerably. The thirteen cows in the showyard were a credit to their breed. The average score was 95.7, which is well above the class standard (90), and ten of the cows secured points in excess of that value. The first prize and the Rowallan Cup were obtained by Mr. A. Y. Allan's "Aitkenbar Mabel 2nd" (No. 325), with the fine score of 120 points, and the second prize by Mr. J. Howie's "Molly" (No. 323), with 114 points.

Class 20. Ayrshire Heifer.—Entries 10: Present 10. This class is worthy of the most unstinted praise. A record has been created which can never be broken, but only be equalled, in that all the entries appeared in the showyard and every heifer was awarded points in excess of the class standard (60 points). It is a rare occurrence for a whole class to be so uniformly excellent, especially at their first appearance in the Show. The first prize was secured by Mr. W. Murdock's "Buntonhill Eunice 2nd" (No. 329), with a most creditable score of 95.5 points, and the same animal was reserve for the Rowallan Cup.

Class 21. Kerry Cow.—Entries 12: Present 8. A considerable decrease in the number of entries and animals present has to be recorded this year, and furthermore the exhibits failed to secure an average score equal to the class standard (80 points).

Mr. J. W. Towler's "Flora of Carton" (No. 345) obtained the first prize with the moderate score of 85 points, and also the Silver Challenge Cup offered by the English Kerry and Dexter Cattle Society.

Class 22. Kerry Heifer.—Entries 11: Present 5. Only one animal attained the class standard (53 points), and the results were disappointing. The first prize was obtained by "Hattingley Haughty" (No. 358), with 63.4 points, exhibited by Capt. N. Zambra and Mr. C. Williamson-Milne.

Class 23. Dexter Cow.—Entries 5: Present 4. Of the cows exhibited in this class only one attained the class standard (70 points)

although the standard was reduced by 5 points for the 1922 Show. Whilst the general results are still somewhat dubious, it is very pleasing to note that the average for the class has steadily increased from 40.4 points in 1920 to 59.7 in 1922. The first prize and Nutt Challenge Cup was awarded to Mr. A. C. King's "La Mancha Madelin" (No. 363), with 70.9 points.

Class 25. British Friesian Cow over 5 years old.—Entries 30 : Present 14. Whilst the number of absentees in the British Friesian Classes (25, 26, 27) was still surprisingly large, it must be noted that the total number (37) of animals exhibited at the Show was a record for the breed. In this particular class, eight of the fourteen cows obtained points above the standard, but it is regrettable to observe that six animals lost points owing to a deficiency of fat in the morning milk. The first prize and the Barham Cup was secured by Messrs. A. & J. Brown's "Hedges Dutch Gossip" (No. 392), with 158.3 points, whilst "Blackmore Ena 2nd" exhibited by Mr. G. Holt-Thomas obtained the second prize with a score of 155.3 points.

Class 26. British Friesian Cow over 3 and under 5 years old.—Entries 28 : Present 16. This class made its first appearance in 1921, when the numbers were small, but the results were most creditable. In 1922 the number of animals exhibited in the showyard had quadrupled, but the general fitness had sadly deteriorated. Ten animals lost points—170 points in all—for deficiencies in the quality of the milk samples, and only nine attained the class standard (91 points). The average score for the class fell from 114.9 in 1921 to 92.6 points in 1922. One pleasing feature, however, has to be reported, that is, the magnificent score of 149.5 points obtained by Messrs. W. & R. Wallace's "Hadham Duchess" (No. 415), which secured first prize. The second prize was won by "Beccles Silver Queen" (No. 407), exhibited by Mr. G. Holt-Thomas.

Class 27. British Friesian Heifer.—Entries 18 : Present 7. Five out of the seven heifers obtained points in excess of the class standard (73), and although four animals lost a total of 60 points for poorness in the quality of the milk, the class average (79.3) shows a slight improvement over the figure (78.8) for 1922. The first prize was awarded to Mr. G. T. Eaton's "Thurston Evelyn" (No. 431), with a score of 88.9 points, and the second prize, for a score of 86.4 points, to "Hache Teelt" (No. 438), exhibited by the Hache Herd. An examination of the results in Classes 25, 26 and 27 show that over one-third of the British Friesian Cattle gave inferior milk. As the animals were, no doubt, selected carefully for the Show, it must be a matter of some considerable concern to all interested in the welfare of this particular breed, that a more presentable record should be obtained. That the capabilities are there is evidenced by the large proportion of the challenge trophies which are secured each year by individual members of the breed.

Class 28. Welsh Black Cow.—Entries 6: Present 5. As this was the first year the Welsh Black Cows have put in an appearance, high merit can scarcely be expected of the exhibits. Three of the cows failed to attain the class standard (90 points), and the average for the class was 83·7 points. No doubt, in future more creditable results will be obtained. The first prize was secured by Mr. C. W. Crompton's "Glyn Ethel" (No. 442), with the very fine score of 109·9 points. The second prize was won by Mr. N. L. Moon's "Sianet O'r Bryn" (No. 445), with 95·5 points.

CHALLENGE CUPS AND TROPHIES.

The keenest interest is always taken in the awards of the Challenge Cups and Trophies, which are open for competition to all cows in the Milking Trials, and the final decisions of the judges are awaited most anxiously and often most impatiently.

The Challenge Cups which are awarded annually are as follows :—

(1) The "Barham" Challenge Cup (value £50), awarded to the owner of the cow gaining the greatest number of points in the Milking Trials.

(2) The "Spencer" Challenge Cup (value 50 guineas), awarded to the owner of the best Dairy Cow in the Show gaining the greatest number of points by Inspection, Milking Trials and Butter Test.

(3) The "Shirley" Challenge Cup (value 50 guineas), awarded to the owner of the cow giving the greatest weight of milk in the Milking Trials, such milk to contain not less than 3 per cent. fat and 8·5 per cent. non-fatty solids.

In 1921, all three cups were won by one cow, but this year the cups have been divided. The Barham Cup was won by a British Friesian Cow, "Hedges Dutch Gossip" (No. 329), exhibited by Messrs. A. & J. Brown, whilst Mr. G. Holt-Thomas's "Blackmore Ena 2nd" (No. 383) of the same breed was Reserve.

The Spencer Challenge Cup was also awarded to a British Friesian Cow, "Kingswood Gladys" (No. 370), exhibited by Mr. J. Russel; and the same animal was Reserve for the Shirley Challenge Cup. The Reserve for the Spencer Challenge Cup was Mr. W. Hunt's South Devon Cow, "Netton Lily" (No. 307).

The Cow giving the greatest weight of milk of not less than standard quality was the British Friesian "Blackmore Ena 2nd" owned by Mr. G. Holt-Thomas, and the animal was thus awarded the Shirley Challenge Cup.

Bledisloe Bowl.—The new trophy provided by the generosity of Lord Bledisloe, was first available for competition in 1921, and is awarded annually to the Breed Society adjudged to have the best

BLEDISLOE BOWL.—Points of the Competing Teams.

Pedigree Shorthorns.				Non-Pedigree Shorthorns.				Lincolnshire Red Shorthorns.				Jerseys.				Guernseys.			
Cat. No.	Insp'ct'n Points.	Milking Trial Points.		Cat. No.	Insp'ct'n Points.	Milking Trial Points.		Cat. No.	Insp'ct'n Points.	Milking Trial Points.		Cat. No.	Insp'ct'n Points.	Milking Trial Points.		Cat. No.	Insp'ct'n Points.	Milking Trial Points.	
		—	—			—	—			—	—			—	—			—	—
19	—	152.2	129.8	97	80	129.8	119	119	150.6	109.3	109.3	154	100	109.3	128.0	217	70	128.0	128.0
8	100	139.1	117.2	93	50	117.2	116	116	131.0	101.8	101.8	159	70	101.8	99.3	210	70	99.3	99.3
21	70	137.3	116.4	99	70	116.4	113	113	129.5	95.5	95.5	147	—	—	87.6	213	—	87.6	87.6
18	—	131.6	112.2	88	100	112.2	115	115	121.5	94.6	94.6	169	—	—	80.8	211	100	80.8	80.8
9	—	123.0	112.0	98	—	112.0	117	117	104.2	90.6	90.6	146	80	90.6	73.3	216	80	73.3	73.3
13	—	119.1	111.8	87	90	111.8	123	123	96.7	89.5	89.5	163	60	89.5	64.1	215	90	64.1	64.1
Total		972.3		Total		1,089.4	Total	Total	1,123.5		891.3	Total				Total		943.1	
Red Polls.				Devons.				Ayrshires.				Kerries.				British Friesians.			
Cat. No.	Insp'ct'n Points.	Milking Trial Points.		Cat. No.	Insp'ct'n Points.	Milking Trial Points.		Cat. No.	Insp'ct'n Points.	Milking Trial Points.		Cat. No.	Insp'ct'n Points.	Milking Trial Points.		Cat. No.	Insp'ct'n Points.	Milking Trial Points.	
		—	—			—	—			—	—			—	—			—	—
253	—	122.6	126.2	300	90	126.2	325	325	100	120.0	85.0	345	70	85.0	158.3	392	50	158.3	158.3
242	90	119.1	111.1	302	70	111.1	323	323	90	114.0	80.9	343	90	80.9	153.3	383	—	153.3	153.3
256	—	118.3	104.1	297	80	104.1	321	321	—	112.0	80.0	342	70	80.0	152.8	370	100	152.8	152.8
248	—	101.2	101.0	303	100	101.0	322	322	70	110.5	79.9	339	50	79.9	143.7	380	70	143.7	143.7
255	—	98.4	98.1	299	50	98.1	324	324	80	106.6	76.8	338	100	76.8	142.8	381	—	142.8	142.8
244	—	98.2	83.3	298	60	83.3	326	326	70	104.2	72.1	349	60	72.1	128.6	374	—	128.6	128.6
Total		747.8		Total		1,083.8	Total	Total	1,077.3		914.7	Total				Total		1,101.5	

exhibit of good all-round Dairy Cows. The cows to constitute each representative breed team are the first six cows in the Milking Trials, provided that such animals have been considered by the Inspection Judges to be typical specimens of their respective breed.

In 1922, ten teams representing the Pedigree Dairy Shorthorns, Non-Pedigree Dairy Shorthorns, Lincolnshire Reds, Jerseys, Guernseys, Red Polls, Devons, Ayrshires, Kerries, and British Friesians were admitted to the competition. In judging for the Bledisloe Bowl, the Inspection points, which were double those given in the Spencer Cup Competition, were added to the Milking Trial points gained by the six cows constituting each team. The results, given in the accompanying table, show that the Lincolnshire Red Shorthorns obtained the highest award, and therefore the Lincolnshire Red Shorthorn Association will hold the Bledisloe Bowl for 1922-1923.

The conditions under which this handsome trophy will be competed for in the future cannot be regarded as settled. There are several important factors which have not received attention this year. The first relates to the number of animals present in the showyard and the consequent importance of the award of the Inspection Points which do not necessarily follow the award of the points in the Milking Trials. The second is the number of points above the class standard which each team secures. Indeed there is but little doubt that the conditions may be altered, as experience grows, so that the breeds may compete upon the most equitable footing.

Comparison of the Breeds.

In Table I the average weight of milk given by each class is noted together with the average live weight of the class, so that a study may be made of the relation between live weight and milk yield. As this is only the third occasion on which the live weight data have been collected, it is not safe to draw any definite conclusions, but the creditable returns for the Lincolnshire Reds (Class 6), Ayrshires (Class 19), and the British Friesians (Class 25) should be noted.

The average yield of milk for the British Friesians (Class 25) is 62.0 lbs., and is thus higher than the figure (61.6 lbs.) for 1921, and constitutes a record.

Yield of Milk and Time since Calving.—It was suggested to the writer that he should deal with this topic in the report for this year, but in view of the colossal amount of data which the Association has available, dating from 1880, and the extreme importance of the subject for each individual breed, it is felt that the subject cannot be dealt with adequately in the very limited space available in this report. An enormous collection of figures has been made for most breeds, and the writer hopes to deal with the matter at length in a separate communication to the Association.

TABLE I

Class.	Description.	Number in Class.		Average Weight of Class.	Average Yield of Milk.	Average Fat.	Animals below Standard for Fat A.M. or P.M.		Animals losing Points for Quality of Milk.	Average Points lost by Class for quality of Milk.	Average Points gained by Class.	B.D.F.A. Points for Class
		Entered	Present in Show.				%	%				
				cwt. qrs. lbs.	lbs.	%	%	%				
1	<i>Cows over 5 years old.</i>											
4	Dairy Shorthorn ...	31	20	12 1 8	51.6	3.98	30.0	30.0	3.5	107.7		100
6	Non-Pedigree Dairy Shorthorn ...	22	11	11 2 14	50.7	4.10	9.1	18.2	1.8	108.1		110
8	Lincoln Red Shorthorn ...	12	8	11 2 10	57.2	3.58	37.5	37.5	6.3	113.2		100
11	Jersey ...	39	24	7 1 20	31.8	4.90	Nil	4.2	0.4	79.7		90
14	Guernsey ...	8	6	8 2 26	37.8	4.73	Nil	Nil	Nil	88.4		85
17	Red Poll ...	22	14	10 2 1	45.0	3.69	28.6	35.7	5.0	91.5		100
18	Devon ...	7	7	10 3 25	44.2	4.21	Nil	Nil	Nil	98.7		90
19	South Devon ...	17	5	13 2 6	42.9	4.55	Nil	Nil	Nil	100.5		100
21	Ayrshire ...	17	13	9 2 17	44.6	4.02	15.4	15.4	1.5	95.7		90
23	Kerry ...	12	8	7 3 25	35.2	3.83	25.0	25.0	2.5	75.3		80
25	Dexter ...	5	4	6 3 24	22.5	4.37	Nil	Nil	Nil	59.7		70
28	British Friesian ...	30	14	12 1 20	62.0	3.34	42.9	42.9	7.9	120.2		110
	Welsh Black ...	6	5	10 3 18	41.0	3.69	60.0	60.0	6.0	83.7		90
	<i>Cows over 3 and under 5 years old.</i>											
2	Dairy Shorthorn ...	25	12	11 3 24	44.2	4.03	16.7	16.7	1.7	94.9		83
12	Guernsey ...	9	7	8 3 23	28.0	5.17	Nil	Nil	Nil	72.4		71
15	Red Poll ...	14	10	9 3 8	42.1	3.15	60.0	60.0	10.0	76.4		83
26	British Friesian ...	28	16	11 3 8	51.2	3.22	62.5	62.5	10.6	92.6		91
	<i>Heifers.</i>											
3	Dairy Shorthorn ...	27	11	10 0 22	32.0	4.21	Nil	Nil	9.1	72.1		66
5	Non-Pedigree Dairy Shorthorn ...	6	4	9 2 26	34.1	3.72	Nil	Nil	Nil	73.0		73
7	Lincoln Red ...	7	5	9 1 24	36.0	3.61	40.0	40.0	4.0	71.4		66
9	Jersey (bred in Gt. Britain or Ireland) ...	17	8	6 3 17	29.3	5.46	Nil	Nil	Nil	74.7		60
10	Jersey (bred in Channel Is.) ...	23	4	6 2 0	25.0	5.35	Nil	Nil	Nil	66.8		60
13	Guernsey ...	11	5	7 1 11	26.7	4.76	Nil	Nil	Nil	62.2		56
16	Red Poll ...	23	10	9 2 10	30.8	3.86	20.0	20.0	3.0	64.7		66
20	Ayrshire ...	10	10	8 3 10	36.6	4.03	20.0	20.0	2.0	78.5		60
22	Kerry ...	11	5	6 2 23	23.0	3.87	20.0	20.0	2.0	49.9		53
27	British Friesian ...	18	7	10 3 7	44.1	3.22	57.1	57.1	8.6	79.3		73

TABLE II.—SHOWING NUMBER OF COWS TESTED, AVERAGE POINTS GAINED AND THE NUMBER OF COWS COMING UP TO THE SOCIETY'S STANDARD—1920 TO 1922.

Class.	Description.	No. of Cows Tested.	Average Points Gained.	Number and Percentage of Cows above Standard.				Average Live Weight of Class.			
				1920		1921		1922		1921	
				o/o	%	o/o	%	o/o	%	cwts. qrs. lbs.	cwts. qrs. lbs.
1	Pedigree Dairy Shorthorns ...	100	103.9	33.3	14	66.6	12	60.0	12	1	7
2	Ditto (over 3 and under 5 yrs.) ...	83	107.7	54.5	16	80.0	10	83.3	11	2	8
3	Ditto Heifers ...	66	94.9	33.3	5	33.3	8	72.7	12	2	11
4	Non-Pedigree Shorthorns ...	110	72.1	33.3	10	71.4	6	54.5	12	0	22
5	Ditto Heifers ...	73	108.1	54.5	10	71.4	6	54.5	12	0	25
6	Ditto Heifers ...	73	73.0	21.0	5	83.3	2	60.0	12	2	11
7	Lincolnshire Red Shorthorns ...	100	113.2	71.4	4	50.0	3	62.5	12	2	11
8	Ditto Heifers ...	66	113.2	83.3	4	100.0	3	60.0	10	1	20
9	Jerseys ...	90	79.7	23.5	3	15.7	5	20.8	7	1	23
10	Ditto Heifers, bred in Gt. Britain and Ireland ...	60	74.7	—	—	—	8	100.0	—	—	—
11	Ditto Heifers, bred in Channel Islands ...	60	66.8	—	—	—	3	75.0	—	—	—
12	Guernseys ...	85	92.8	41.7	6	75.0	3	50.0	9	3	26
13	Ditto (over 3 and under 5 yrs.) ...	71	68.4	5	4	50.0	4	57.1	7	3	16
14	Ditto Heifers ...	56	67.1	6	7	100.0	4	80.0	7	3	0
15	Red Polls ...	100	62.2	75.0	7	100.0	4	28.6	10	2	17
16	Ditto (over 3 and under 5 yrs.) ...	83	91.5	30.0	2	20.0	4	40.0	9	3	15
17	Ditto Heifers ...	66	76.4	37.5	6	66.6	4	40.0	9	0	7
18	Devons ...	90	64.7	63.6	5	62.5	5	71.4	11	1	4
19	South Devons ...	100	98.7	75.0	7	87.5	2	40.0	14	2	27
20	Ayrshires ...	90	105.5	—	2	40.0	2	76.9	9	1	5
21	Ayrshire Heifers ...	60	106.7	—	2	100.0	10	100.0	—	—	—
22	Kerries ...	80	78.5	—	5	31.2	3	37.5	7	3	22
23	Ditto Heifers ...	53	75.3	36.3	2	33.3	1	20.0	6	1	15
24	Dexters ...	70	49.9	66.6	2	40.0	1	25.0	6	1	26
25	Ditto Heifers ...	46	59.7	0	0	—	8	57.1	12	1	19
26	British Friesians ...	110	120.2	37.0	8	80.0	5	56.2	12	1	18
27	Ditto (over 3 and under 5 yrs.) ...	91	92.6	—	4	100.0	9	71.4	11	0	0
28	Ditto Heifers ...	73	79.3	37.5	3	—	2	40.0	—	—	—
29	Welsh Black ...	90	83.7	—	—	—	—	—	—	—	—
30	—	183	—	79	43.1	129	58.6	141	55.7	—	—

TABLE V.—QUANTITY AND QUALITY OF MILK, 1911-1922.

Breed.	Year.	No. of Animals.	Average Weight of Milk.		Total Weight of Milk.	Percentage Composition of Milk.							
			Morn.			Even.		Fat.		Solids, not Fat.		Total Solids.	
			Morn.	Even.		Morn.	Even.	Morn.	Even.	Morn.	Even.	Morn.	Even.
Shorthorns, Pedigree	1911	13	lbs. 23.8	lbs. 21.5	45.3	3.23	3.75	9.21	8.95	12.44	12.70		
	1912	13	24.5	21.8	46.3	3.66	4.01	9.16	9.13	12.82	12.14		
	1913	24	24.9	22.9	47.8	3.39	3.67	9.06	8.94	12.45	12.61		
	1914	14	26.4	23.8	50.2	3.60	4.09	9.18	9.08	12.78	13.17		
	1915	12	28.2	25.4	53.6	3.17	3.54	9.32	9.16	12.49	12.70		
Do. do. 5 years and over	1919	15	24.1	21.8	45.9	3.61	4.09	9.15	8.98	12.76	13.07		
	1920	9	26.1	22.2	48.3	3.58	4.06	9.00	9.08	12.58	13.14		
	1921	21	27.3	22.5	49.8	3.63	4.08	9.00	8.90	12.63	12.98		
	1922	20	28.4	23.2	51.6	3.57	4.39	9.07	8.95	12.64	13.34		
	1920	11	21.2	18.4	39.6	3.51	3.9	9.30	9.20	12.81	13.17		
Do. do. over 3 & under 5 years	1921	20	24.7	21.2	45.9	3.68	4.41	9.12	9.05	12.80	13.46		
	1922	12	23.9	20.3	44.2	3.47	4.60	9.35	9.07	12.82	13.67		
	1911	10	16.8	14.9	31.7	3.24	3.41	9.21	9.21	12.45	12.61		
Shorthorns, Pedigree (Heifers)	1912	3	12.9	11.3	24.2	3.47	3.13	9.44	9.34	12.81	12.47		
	1913	20	14.9	13.9	28.8	3.71	4.16	9.26	9.05	12.97	13.21		
	1914	15	15.8	14.1	29.9	3.26	3.89	9.19	9.08	12.45	12.97		
	1915	4	17.6	15.2	32.8	3.76	3.63	9.45	9.52	13.21	13.15		
	1919	5	14.7	12.5	27.2	3.25	3.99	9.34	9.22	12.59	13.21		
Shorthorns, Non-Pedigree Cows	1920	9	14.8	13.7	28.5	3.58	4.68	9.26	9.12	12.84	13.80		
	1921	15	15.3	13.5	28.8	3.76	4.06	9.15	9.24	12.91	13.30		
	1922	11	17.4	14.6	32.0	3.91	4.51	9.22	9.01	13.13	13.53		
	1911	18	29.0	26.2	55.2	3.43	4.36	9.26	8.95	12.69	13.37		
	1912	22	31.4	28.3	59.7	3.69	4.29	9.11	8.94	12.80	13.23		
Shorthorns, Non-Pedigree Cows	1913	10	29.8	28.6	58.4	3.72	3.92	8.97	8.77	12.69	12.69		
	1914	15	27.9	25.1	53.0	3.52	4.10	8.97	8.86	12.49	12.96		
	1915	13	30.4	27.4	57.8	3.80	3.69	9.16	9.16	12.85	12.85		
	1919	11	23.4	20.4	43.8	4.20	4.48	8.98	9.19	13.18	13.67		
	1920	11	27.5	23.1	50.6	4.02	4.74	9.28	9.13	13.30	13.87		
1921	14	28.6	24.4	53.0	4.09	4.60	9.19	9.08	13.28	13.68			
1922	11	27.2	23.5	50.7	3.60	4.61	9.28	8.99	12.88	13.60			

TABLE V.—QUANTITY AND QUALITY OF MILK, 1911-1922—Continued.

Breed.	Year.	No. of Animals	Average Weight of Milk.		Total Weight of Milk.	Percentage Composition of Milk.					
			Fat.			Solids, not Fat.		Total Solids.			
			Morn.	Even.		Morn.	Even.	Morn.	Even.		
Shorthorns, Non-Pedigree (Heifers)	1911	7	lbs. 19.3	17.7	lbs. 37.0	3.51	3.72	9.51	9.25	13.03	12.99
	1912	2	19.7	18.6	38.3	3.57	4.31	9.41	9.39	12.98	13.70
	1913	11	19.0	17.4	36.4	3.76	4.16	8.99	8.87	12.75	13.03
	1914	10	19.0	16.7	35.7	3.41	3.66	9.28	9.17	12.69	12.83
	1915	2	20.3	18.4	38.7	3.03	3.81	9.41	9.31	12.44	13.12
	1919	6	20.1	16.3	36.4	3.98	3.55	9.25	9.16	13.23	12.71
	1920	7	19.2	16.2	35.4	3.99	4.55	9.28	9.01	13.27	13.56
	1921	6	19.0	16.9	35.9	4.03	4.03	9.61	9.59	13.64	13.62
	1922	4	18.4	16.0	34.4	3.36	4.08	9.27	9.28	12.63	13.36
	1911	7	26.4	23.7	50.1	3.19	4.66	9.05	8.85	12.24	13.56
	1912	8	24.0	22.2	46.2	3.41	3.96	9.24	9.02	12.65	12.98
	1913	7	26.2	21.4	47.6	3.58	3.48	8.73	8.74	12.31	12.22
Lincolnshire Red Shorthorns	1914	5	26.2	22.6	48.8	3.22	3.48	8.99	9.15	12.21	12.63
	1915	6	29.3	24.8	54.1	3.00	2.92	9.11	9.18	12.11	12.10
	1919	6	25.6	22.3	47.9	3.27	3.96	9.21	8.96	12.48	12.92
	1920	5	23.6	22.0	45.6	2.58	4.38	9.12	8.82	11.70	13.20
	1921	8	28.3	23.6	51.9	3.26	3.81	9.10	9.05	12.36	12.86
	1922	8	30.7	26.5	57.2	3.26	3.90	9.04	9.18	12.30	13.08
	1911	6	16.8	15.5	32.3	3.28	3.70	9.32	9.33	12.60	13.03
	1912	6	16.6	15.6	32.2	3.67	3.75	9.18	9.03	12.85	12.78
	1913	5	18.5	16.8	35.3	3.51	3.74	9.09	9.00	12.60	12.74
	1914	4	18.5	16.3	34.8	3.14	3.69	9.28	9.16	12.42	12.85
	1915	4	18.8	16.7	35.5	2.68	3.12	9.32	9.36	12.00	12.48
	1919	6	16.8	14.4	31.2	3.89	4.06	9.19	9.19	13.08	13.25
Lincolnshire Red Heifers..	1920	6	22.8	18.9	41.7	3.23	4.15	9.19	9.04	12.42	13.19
	1921	4	22.1	18.0	40.1	3.98	4.36	9.10	9.34	13.03	13.70
	1922	5	19.6	16.4	36.0	3.51	3.71	9.15	9.35	12.66	13.06

TABLE V.—QUANTITY AND QUALITY OF MILK, 1911-1922—Continued.

Breed.	Year.	No. of Animals	Average Weight of Milk.		Total Weight of Milk.		Percentage Composition of Milk.							
			Milk.		Milk.		Fat.		Solids, not Fat.		Total Solids.			
			Morn.	Even.	Morn.	Even.	Morn.	Even.	Morn.	Even.	Morn.	Even.	Morn.	Even.
Jersey Cows..	1911	16	lbs.	lbs.	lbs.	lbs.	4.65	5.31	9.24	9.06	13.89	14.37		
	1912	9	19.6	17.3	36.9	37.5	4.40	5.39	9.17	9.03	13.57	14.42		
	1913	12	20.2	17.3	37.5	37.5	4.53	5.34	9.21	9.01	13.74	14.35		
	1914	12	18.4	16.6	35.0	35.1	4.67	5.15	9.40	9.15	14.07	14.30		
	1915	12	18.4	16.7	35.1	35.1	4.67	5.15	9.40	9.15	14.07	14.30		
	1919	24	16.0	14.4	30.4	30.4	4.59	4.99	9.44	9.41	14.03	14.40		
	1920	17	16.3	14.3	30.6	30.6	4.71	5.72	9.27	9.09	13.98	14.81		
	1921	19	18.2	15.7	33.9	33.9	4.75	5.53	9.15	8.86	13.90	14.39		
	1922	24	17.8	14.0	29.1	29.1	4.66	5.38	9.44	9.32	14.10	14.70		
	1922	24	17.8	14.0	31.8	31.8	4.74	5.06	9.22	9.30	13.96	14.36		
Jersey Heifers (bred in Gt. Britain or Ireland Do. (bred in Channel Islands	1922	8	15.7	13.6	29.3	29.3	5.00	5.92	9.31	9.21	14.31	15.13		
	1922	4	13.6	11.8	25.4	25.4	4.86	5.83	9.48	9.40	14.34	15.23		
Guernsey Cows	1911	1	18.7	15.3	34.0	34.0	4.16	4.7	9.32	9.46	13.48	14.16		
	1912	4	15.9	14.1	30.0	30.0	4.11	5.24	9.02	8.91	13.49	14.15		
	1913	10	16.1	13.6	23.7	23.7	4.72	5.35	9.30	9.17	14.02	14.52		
	1914	6	19.2	15.7	3	3	4.52	5.04	9.54	9.46	14.06	14.50		
	1915	10	18.3	15.1	33.4	33.4	4.50	4.69	9.43	9.45	13.93	14.14		
	1919	11	17.6	15.4	33.0	33.0	4.89	5.48	9.32	9.16	14.21	14.64		
	1920	12	19.3	16.3	35.6	35.6	4.46	5.28	9.27	9.16	13.73	14.44		
	1921	8	20.8	17.2	38.0	38.0	4.52	5.18	9	9.23	13.81	14.41		
	1922	6	21.1	16.7	37.8	37.8	4.44	5.02	9.13	9.23	13.57	14.25		
	1921	8	15.4	12.6	28.0	28.0	4.49	4.99	9.27	9.11	13.76	14.10		
Do. 5 years and over	1921	8	15.4	12.6	28.0	28.0	5.01	5.33	9.42	9.31	14.43	14.64		
Do. over 3 and under 5 years	1922	7	15.6	12.4	28.0	28.0	4.26	4.94	9.39	9.32	13.65	14.26		
Guernsey Heifers	1920	8	13.9	11.2	25.1	25.1	5.11	5.52	9.45	9.33	14.56	14.85		
	1921	7	14.1	11.1	25.2	25.2	5.11	5.52	9.45	9.33	14.56	14.85		
	1922	5	14.4	12.3	26.7	26.7	4.24	5.27	9.46	9.40	13.70	14.67		

TABLE V.—QUANTITY AND QUALITY OF MILK, 1911-1922—Continued.

Breed.	Year.	No. of Animals	Average Weight of Milk.		Total Weight of Milk.	Percentage Composition of Milk.					
			Milk.			Fat.		Solids, not Fat.		Total Solids.	
			Morn.	Even.		Morn.	Even.	Morn.	Even.	Morn.	Even.
Red Poll Cows	1911	6	19.9	17.9	lbs. 37.8	3.29	4.15	9.20	9.08	12.49	13.23
	1912	8	24.9	21.2	46.1	3.50	3.65	9.13	9.09	12.63	12.74
	1913	6	26.4	23.0	49.4	3.14	3.58	8.96	8.69	12.10	12.27
	1914	5	31.7	28.6	58.5	3.99	3.73	9.13	9.31	13.12	13.04
	1915	3	22.9	20.5	43.4	3.42	3.42	9.47	9.23	12.89	12.65
Do. do. 5 years and over..	1919	18	23.4	20.5	43.9	3.54	3.86	9.01	8.94	12.80	12.89
	1920	10	23.3	19.5	42.8	3.59	4.03	9.11	9.04	12.70	13.07
	1921	10	20.4	16.7	37.1	4.20	4.61	8.71	8.60	12.91	13.21
	1922	14	24.3	20.7	45.0	3.32	4.06	9.11	8.96	12.43	13.02
	1923	8	20.9	16.9	37.8	3.61	4.19	9.17	9.06	12.78	13.25
Do. do. over 3 and under 5 years	1921	9	23.1	18.9	42.0	4.53	4.75	9.03	9.07	13.56	13.82
	1922	10	21.2	20.9	42.1	2.87	3.43	9.20	8.99	12.07	12.42
Red Poll Heifers	1911	5	15.5	14.4	29.9	3.66	4.30	9.30	9.32	12.06	13.63
	1912	4	17.8	16.3	34.1	3.95	4.00	9.49	9.47	13.45	13.47
	1913	9	16.3	14.7	31.0	3.80	4.02	9.34	9.05	13.14	13.07
	1914	7	17.3	15.4	32.7	3.36	3.43	9.26	9.24	12.62	12.67
	1915	7	17.8	16.4	34.2	3.37	3.72	9.62	9.36	12.99	13.09
	1919	5	19.2	18.3	37.5	3.09	3.95	9.28	9.11	12.37	13.06
	1920	11	17.6	15.2	32.8	3.93	4.45	9.37	9.26	13.30	13.71
	1921	8	17.3	14.7	32.0	3.91	4.34	9.24	8.98	13.15	13.32
	1922	10	16.5	14.3	30.8	3.45	4.27	9.48	9.18	12.93	13.45
	1919	5	20.5	16.7	37.2	4.28	4.39	9.42	9.28	13.70	13.67
Devon Cows ..	1920	4	25.6	20.5	46.1	4.94	4.60	9.04	8.98	13.98	13.58
	1921	8	24.1	20.7	44.8	4.82	5.07	9.07	9.05	13.89	14.12
	1922	7	24.2	20.0	44.2	3.73	4.69	9.29	9.41	13.02	14.10

TABLE V.—QUANTITY AND QUALITY OF MILK, 1911-1922—Continued.

Breed.	Year.	No. of Animals	Average Weight of Milk.		Total Weight of Milk.	Percentage Composition of Milk.						Total Solids.
			Milk.			Fat	Solids, not Fat.		Total			
			Morn.	Even.			Morn.	Even.	Morn.	Even.		
South Devon Cows	1911	3	26.8	23.0	49.8	3.21	3.62	9.23	9.09	12.44	12.72	
	1912	6	25.1	22.9	48.0	3.86	4.14	9.36	9.18	13.22	13.32	
	1913	2	25.1	21.8	46.9	4.09	3.80	9.19	9.06	13.28	12.86	
	1914	6	26.5	25.4	51.9	3.25	3.87	9.31	9.19	12.56	13.06	
	1915	3	22.2	18.4	40.6	3.17	3.60	9.29	9.06	12.46	12.66	
	1919-20	—	—	—	—	—	—	—	—	—	—	
	1921	5	22.6	20.1	42.7	4.75	5.28	9.10	9.05	13.85	14.38	
	1922	5	23.0	19.9	42.9	4.39	4.71	9.52	9.66	13.91	14.37	
Ayrshire Cows	1911	2	17.4	17.4	34.8	2.72	3.38	8.71	8.59	10.93	11.97	
	1912	7	21.5	19.2	40.7	3.48	3.75	9.28	9.10	12.76	12.85	
	1913	4	25.3	22.5	47.8	4.15	4.34	9.57	9.27	13.72	13.61	
	1914-15	—	—	—	—	—	—	—	—	—	—	
	1919-20	—	—	—	—	—	—	—	—	—	—	
	1921	2	25.9	21.7	47.6	4.73	5.13	8.81	8.72	13.54	13.85	
	1922	13	24.1	20.5	44.6	3.78	4.27	9.30	9.14	13.08	13.41	
	1922	10	19.8	16.8	36.6	3.84	4.22	9.32	9.37	13.16	13.59	
Ayrshire Heifers	1911	6	16.9	14.7	31.6	3.48	3.92	9.11	9.04	12.59	12.97	
	1912	2	21.3	19.9	41.2	3.81	5.03	9.32	9.21	13.13	14.24	
	1913	5	16.9	14.3	31.2	3.97	4.18	9.24	9.24	13.21	13.42	
	1914	—	—	—	—	—	—	—	—	—	—	
	1919	5	16.7	15.9	32.6	3.70	4.40	9.03	9.06	12.73	13.46	
Kerry Cows	1919	—	—	—	—	—	—	—	—	—	—	
	1920	11	16.3	14.2	30.5	4.27	4.83	9.42	9.19	13.69	14.02	
	1921	14	17.8	13.6	31.4	4.42	5.15	9.04	9.00	13.46	14.15	
	1922	8	19.2	16.0	35.2	3.52	4.14	9.23	9.07	12.75	13.21	

Description.	Less than 3 per cent. of Fat.										Less than 8·5 per cent. of other Solids.									
	1911	1912	1913	1914	1915	1919	1920	1921	1922	1911	1912	1913	1914	1915	1919	1920	1921	1922		
Cows.																				
Dairy Shorthorn—Pedigree ...	5	3	6	2	6	5	2	4	6	1	0	3	0	0	1	2	1	0		
Dairy Shorthorn—Non-Pedigree ...	6	5	3	4	4	2	2	1	1	3	2	3	2	0	1	0	0	1		
Lincoln Red Shorthorn ...	4	2	0	2	5	2	4	3	3	0	0	1	0	0	0	0	0	1		
Red Poll ...	2	3	2	0	0	5	1	0	4	0	0	1	0	0	2	0	4	1		
British Friesian ...	—	—	—	4	5	2	12	0	6	—	—	—	—	—	1	1½	4	3		
Devon ...	—	—	—	—	—	0	0	0	0	—	—	—	—	—	0	0	0	0		
South Devon ...	1	0	0	2	1	No Entries	No Entries	0	0	0	0	0	0	0	No Entries	No Entries	1	0		
Ayrshire ...	1	2	0	0	0	0	0	1	0	1	1	0	0	0	0	3	0	1		
Jersey ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Guernsey ...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Kerry ...	0	0	0	No Entries	1	1	1	0	2	1	0	0	No Entries	No Entries	1	0	1	0		
Dexter ...	—	—	—	0	0	0	0	0	0	—	—	—	—	—	0	1	1	0		
Welsh Black ...	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	0		
COWS (OVER 3 AND UNDER 5 YEARS)																				
Dairy Shorthorn—Pedigree ...	—	—	—	—	—	2	3	5	2	—	—	—	—	—	0	1	1	0		
Dairy Shorthorn—Non-Pedigree ...	—	—	—	—	—	—	2	0	6	—	—	—	—	—	—	0	1	1		
Red Poll ...	—	—	—	—	—	—	—	0	10	—	—	—	—	—	—	—	1	3		
British Friesian ...	—	—	—	—	—	—	—	0	0	—	—	—	—	—	—	—	—	0		
Guernsey ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
HEIFERS.																				
Dairy Shorthorn—Pedigree ...	4	2	1	3	1	1	2	1	0	0	0	0	0	0	0	0	0	1		
Dairy Shorthorn—Non-Pedigree ...	2	1	1	2	1	1	0	2	0	0	0	2	0	0	0	0	0	0		
Lincoln Red Shorthorn ...	1	1	2	2	3	1	1	2	0	2	0	1	0	0	0	0	0	0		
Red Poll ...	1	0	0	1	3	1	1	1	2	0	0	0	0	0	0	0	0	0		
British Friesian ...	—	—	—	—	—	1	3	0	4	—	—	—	—	—	0	2	3	1		
Guernsey ...	—	—	—	—	—	0	0	0	0	—	—	—	—	—	0	0	0	0		
Kerry ...	—	—	—	—	—	—	0	0	1	—	—	—	—	—	—	—	—	—		
Jersey (bred in Gt. Britain or Ireland)	—	—	—	—	—	—	—	—	0	—	—	—	—	—	—	—	—	0		
Do. (bred in Channel Islands)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Ayrshire ...	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	0		
Total ...	28	19	15	22	29	23	34	18	56	7	3	11	2	0	7	23	18	12		
Number of Animals Tested ...	100	94	125	105	85	145	183	220	253	100	94	125	105	85	145	183	220	253		

CLASS 1.—DAIRY SHORTHORN COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1917)—Continued.

Number ...	...	...	...	8 Merry Maid 5th.	9 Vain Lucy 5th.	11 Border Duchess 3rd.	13 Spenny Rose 6th.
Name ...	...	...	...	May 3, 1917.	Feb. 28, 1913.	Nov. 11, 1916.	Jan. 6, 1914.
Born ...	...	...	...	Sept. 21. 25	Sept. 15. 31	Sept. 26. 20	Sept. 26. 6
Last Calved ...	...	...	...	1,357	1,827	1,332	1,324
Days since Calving ...	...	...	...	Morn	Morn	Morn	Morn
Live weight, in lbs. ...	...	...	...	Even	Even	Even	Even
Weight of Milk, 1st day ...	...	...	...	32.3	29.4	26.8	31.4
Weight of Milk, 2nd day ...	...	...	...	28.4	25.9	25.6	24.1
Total ...	...	...	...	35.6	30.5	27.3	28.4
Average ...	...	...	...	26.7	24.6	26.0	25.4
...	...	...	...	67.9	59.9	54.1	59.8
...	...	...	...	55.1	50.5	51.6	49.5
...	...	...	...	33.9	29.9	27.0	29.9
...	...	...	...	27.5	25.2	25.8	24.7
Percentage { Fat ...	...	...	...	4.17	4.69	2.82	3.39
Composition of { Solids other than Fat	...	...	...	8.73	8.67	9.08	9.45
the Milk. { Total Solids	...	...	...	12.90	13.36	11.90	12.84
Actual weight of Fat, in lbs. ...	...	...	...	1.42	1.41	.76	1.09
Calculation of Points multiply by 20...	...	...	...	28.40	28.20	15.20	21.80
Actual weight of Solids other than Fat, in lbs.	...	...	...	2.96	2.58	2.45	2.83
Calculation of Points multiply by 4 ...	...	...	...	11.84	10.32	9.80	11.32
...	...	...	...	9.88	9.24	8.92	9.04
...	...	...	...	61.4	55.1	52.8	54.6
...	...	...	...	56.0	48.4	38.4	44.2
Points { For time since Calving	...	...	...	21.7	19.5	18.7	20.4
{ For weight of Milk (lbs.) ...	...	...	...	139.1	123.0	109.9	119.2
{ For weight of Fat (lbs. × 20)	...	...	...	—	—	10.0	—
{ For weight of Solids other than Fat	...	...	...	139.1	123.0	99.9	119.2
{ (lbs. × 4) ...	...	...	...	2nd Prize.	Highly	Highly	Highly
Total ...	...	...	...	Reserve for	Commended.	Commended.	Commended.
Deductions ...	...	...	...	Desborough Cup.			
Points gained...	...	...	...	
Remarks and Awards ...	...	...	...	

CLASS 1.—DAIRY SHORTHORN COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1917)—Continued.

Number ...	14	15	16	18
Name ...	Combe Bank Johnby.	Princess May.	Orsett Telluria 2nd.	Mabel.
Born ...	May 9, 1917.	Oct. 13, 1916.	Mar. 22, 1916.	Jan. 7, 1917.
Number of Calves ...	2	4	3	—
Last Calved ...	Sept. 19.	Aug. 31.	Sept. 6.	Oct. 2.
Days since Calving ...	27	46	40	14
Live weight, in lbs. ...	1,190	1,402	1,358	1,540
Weight of Milk, 1st day ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	30.2 21.4	27.4 21.0	26.3 21.6	35.7 28.2
Total ...	23.8 24.2	23.5 21.2	25.8 22.5	30.1 23.9
Average ...	54.0 45.6	50.9 42.2	52.1 44.1	65.8 52.1
Percentage ...	27.0 22.8	25.4 21.1	26.0 22.0	32.9 26.0
Composition of { Fat ...	2.21 3.79	3.42 3.32	3.22 4.15	4.08 4.81
the Milk. { Solids other than Fat ...	8.91 8.57	8.82 8.88	9.18 8.75	8.88 8.65
Total Solids ...	11.12 12.36	12.24 12.20	12.40 12.90	12.96 13.46
Actual weight of Fat, in lbs. ...	.59 .87	.87 .70	.84 .91	1.35 1.25
Calculation of Points multiply by 20 ...	11.80 17.40	17.40 14.00	16.80 18.20	27.00 25.00
Actual weight of Solids other than Fat, in lbs. ...	2.41 1.96	2.25 1.88	2.39 1.93	2.94 2.25
Calculation of Points multiply by 4 ...	9.64 7.84	9.00 7.52	9.56 7.72	11.76 9.00
Points { For time since Calving ...	—	—	—	—
{ For weight of Milk (lbs.) ...	49.8	46.5	48.0	58.9
{ For weight of Fat (lbs. × 20) ...	29.2	31.4	35.0	52.0
{ For weight of Solids other than Fat (lbs. × 4) ...	17.5	16.5	17.3	20.8
Total ...	96.5	95.0	100.3	131.7
Deductions ...	10.0	—	—	—
Points gained... ..	86.5	95.0	100.3	131.7
Remarks and Awards ...	Highly Commended.			
...	Reserve.			

CLASS 1.—DAIRY SHORTHORN COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1917)—Continued.

Number ... Name ...	...	...	...	...	19 Cockerham Purty.	21 Waterbrook Rose.	24 Enfield Viola 2nd.		25 Strawberry.
							May 24, 1917.	Sept. 28. 18 1,320	
Born ...	...	...	...	...	Feb. 16, 1914.	Jan. 21, 1917.	...	...	Sept. 28, 1916.
Number of Calves ...	...	...	...	...	Sept. 17. 29 1,371	Sept. 23. 23 1,141	...	...	Sept. 28. 18 1,481
Last Calved ...	...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even	Morn Even
Days since Calving ...	...	...	...	...	38-9 30-8	34-1 26-1	29-7 23-6	28-8 22-8	28-8 22-8
Live weight, in lbs. ...	...	...	...	...	37-0 29-3	36-8 28-2	28-9 22-3	28-8 23-7	28-8 23-7
Weight of Milk, 1st day ...	...	...	...	...	75-9 60-1	70-9 54-3	58-6 45-9	57-6 46-5	57-6 46-5
Weight of Milk, 2nd day ...	...	...	...	...	37-9 30-0	35-4 27-1	29-3 22-9	28-8 23-2	28-8 23-2
Total ...	...	...	...	...	4-03 4-86	3-61 4-96	2-64 2-89	3-40 3-62	3-40 3-62
Average ...	...	...	...	...	9-05 8-94	9-01 8-86	8-82 8-87	9-10 8-88	9-10 8-88
Percentage { Fat ...	...	...	...	...	13-08 13-80	12-62 13-82	11-46 11-76	12-50 12-50	12-50 12-50
Composition of { Solids other than Fat	...	...	...	...	1-53 1-46	1-28 1-35	.77 .66	.98 .84	.98 .84
the Milk. { Total Solids	...	...	...	...	30-60 29-20	25-60 27-00	15-40 13-20	19-60 16-80	19-60 16-80
Actual weight of Fat, in lbs. ...	...	...	...	...	3-43 2-69	3-19 2-37	2-57 2-04	2-61 2-06	2-61 2-06
Calculation of Points multiply by 20 ...	...	...	...	...	13-72 10-76	12-76 9-48	10-28 8-16	10-44 8-24	10-44 8-24
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	...	...	...	...
Calculation of Points multiply by 4 ...	...	...	...	...	...	...	...	...	...
Points { For time since Calving ... For weight of Milk (lbs.) ... For weight of Fat (lbs. × 20) ... For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	67-9	62-5	52-2	52-0	52-0
	...	...	...	...	59-8	52-6	28-6	36-4	36-4
	...	...	...	...	24-5	22-2	18-4	18-7	18-7
	...	...	...	...	152-2	137-3	99-2	107-1	107-1
Total ...	...	...	...	...	—	—	20-0	—	—
Deductions ...	...	...	...	...	152-2	137-3	79-2	107-1	107-1
Points gained...	...	...	...	...	...	...	...	...	...
Remarks and Awards ...	...	...	...	...	1st Prize, Desborough Cup.	3rd Prize.	...	...	Highly Commended.

CLASS I.—DAIRY SHORTHORN COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1917)—Continued.

Number ...	26	27	30	31
Name ...	Hadnock Cherry 4th. May 5, 1911.	Orford Buttercup 5th. June 21, 1917.	Babraham Convallulus Aug. 8, 1916.	Robna. April 2, 1917.
Born ...	— Aug. 29. 48	— Aug. 22. 55	— Oct. 1. 15	— Sept. 26. 20
Number of Calves ...	1,360	1,235	1,463	
Last Calved ...	Morn Even 24-9 18-4	Morn Even 33-0 28-3	Morn Even 23-2 19-1	Morn Even 23-4 18-4
Days since Calving ...	27-1 20-7	33-4 25-7	24-2 21-8	24-5 20-0
Live weight, in lbs. ...	52-0 39-1	66-4 54-0	47-4 40-9	47-9 38-4
Weight of Milk, 1st day ...	26-0 19-5	33-2 27-0	23-7 20-4	23-9 19-2
Weight of Milk, 2nd day ...	4-52 5-20	2-88 3-33	4-76 5-14	4-31 4-56
Total ...	8-92 9-28	8-94 8-75	9-94 9-52	9-45 9-40
Average ...	13-44 14-48	11-82 12-08	14-70 14-66	13-76 13-96
Percentage { Fat ...	1-18 1-02	-96 -9	1-13 1-05	1-03 -88
Composition { Solids other than Fat	23-60 20-40	19-20 18-0	22-60 21-00	20-60 17-60
the Milk. { Total Solids	2-32 1-82	2-97 2-36	2-36 1-95	2-26 1-80
Actual weight of Fat, in lbs. ...	9-28 7-28	11-88 9-44	9-44 7-80	9-04 7-20
Calculation of Points multiply by 20...				
Actual weight of Solids other than Fat, in lbs.				
Calculation of Points multiply by 4 ...				
{ For time since Calving	45-5	60-2	44-1	43-1
{ For weight of Milk (lbs.)	44-0	37-2	43-6	38-2
{ For weight of Fat (lbs. × 20)				
{ For weight of Solids other than Fat	16-6	21-3	17-2	16-2
{ (lbs. × 4) ...				
Total ...	106-1	118-7	104-9	97-5
Deductions ...	—	10-0	—	—
Points gained...	106-1	108-7	104-9	97-5
Remarks and Awards ...	Highly Commended.	Highly Commended.	Highly Commended.	

CLASS 2.—DAIRY SHORTHORN COWS (BORN AFTER 1ST AUGUST, 1917, AND PREVIOUS TO 1ST AUGUST, 1919).

Number ...	...	...	...	...	...	32	38	40	42
						Eaton Dolphinlee Waterloo	Histon Lady Barrington 2nd.	Histon Bianca 2nd.	
Born ...	...	...	...	...	...	Feb. 11, 1919.	May. 1, 1918.	Jan. 23, 1919.	Oct. 21, 1918.
Number of Calves ...	...	...	...	...	...	Sept. 20.	Sept. 21.	Sept. 28.	Sept. 4.
Last Calved ...	...	...	...	...	...	26	25	18	42
Days since Calving ...	...	...	...	...	...	1,344	1,330	1,324	1,188
Live weight, in lbs. ...	...	...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day ...	...	...	...	...	...	26.2 22.1	22.7 16.9	22.1 17.5	22.0 20.1
Weight of Milk, 2nd day ...	...	...	...	...	...	25.4 23.8	21.6 19.3	20.3 17.8	21.0 17.8
Total ...	...	...	...	...	...	51.6 45.9	44.3 36.2	42.4 35.3	43.0 37.9
Average ...	...	...	...	...	...	25.8 22.9	22.1 18.1	21.2 17.6	21.5 18.9
Percentage { Fat ...	...	...	...	...	...	4.01 4.90	3.53 4.55	3.38 4.85	4.50 5.68
Composition of { Solids other than Fat	...	...	...	...	...	9.55 9.20	9.46 9.13	9.44 9.05	9.42 9.22
the Milk. { Total Solids	...	...	...	...	...	13.56 14.10	13.04 13.68	12.82 13.90	13.92 14.90
Actual weight of Fat, in lbs. ...	...	...	...	...	...	1.04 1.12	79 .83	.71 .85	.97 1.07
Calculation of Points multiply by 20...	...	...	...	...	...	20.80 22.40	15.80 16.60	14.20 17.00	19.40 21.40
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	2.46 2.11	2.09 1.66	2.00 1.59	2.04 1.74
Calculation of Points multiply by 4 ...	...	...	...	...	...	9.84 8.44	8.36 6.64	8.00 6.36	8.16 6.96
Points { For time since Calving For weight of Milk (lbs.) For weight of Fat (lbs. × 20) For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	...	—	—	—	.2
	...	...	...	...	...	48.7	40.2	38.8	40.4
	...	...	...	...	...	43.2	32.4	31.2	40.8
	...	...	...	...	...	18.3	15.0	14.4	15.1
	...	...	...	...	...	110.2	87.6	84.4	96.5
Total ...	...	...	...	...	...	—	—	—	—
Deductions ...	...	...	...	...	...	110.2	87.6	84.4	96.5
Points gained...	...	...	...	...	...	—	—	—	—
Remarks and Awards ...	...	...	...	...	...	3rd Prize.	Highly Commended.	Highly Commended.	Highly Commended.

CLASS 2.—DAIRY SHORTHORN COWS (BORN AFTER 1ST AUGUST, 1917, AND PREVIOUS TO 1ST AUGUST, 1919)—Continued.

Number ...	...	...	...	...	43 Melody 40th. Sept. 7, 1918. 1 Sept. 27. 19 1,314	46 Orfold Buttercup 7th. July 9, 1918. Oct. 4. 12 1,222	47 Thornby Ringlet 3rd. Feb. 18, 1918. Sept. 9. 37 1,503	49 Thurham Harrington 2nd Jan. 9, 1918. Sept. 22. 24 1,572
Name ...	...	...	...	...	Morn 21-0 21-2 42-2 21-1	Even 17-4 18-4 35-8 17-9	Morn 32-2 29-2 61-4 30-7	Even 20-6 24-2 49-1 25-0
Born ...	...	...	...	...	3-74 9-64 13-38	4-25 9-51 13-76	4-29 8-53 12-82	3-13 9-21 12-34
Number of Calves ...	...	...	...	...	79	76	96	77
Last Calved ...	...	...	...	...	15-80	15-20	19-20	15-40
Days since Calving ...	...	...	...	...	2-04	1-70	2-59	2-13
Live weight, in lbs. ...	...	...	...	...	8-16	6-80	10-36	8-52
Weight of Milk, 1st day ...	...	...	...	...	For time since Calving			
Weight of Milk, 2nd day ...	...	...	...	...	For weight of Milk (lbs.)			
Total ...	...	...	...	...	For weight of Fat (lbs. × 20)			
Average ...	...	...	...	...	For weight of Solids other than Fat (lbs. × 4) ...			
Percentage { Fat ...	...	...	...	...	39-0	31-0	47-6	55-7
Composition of { Solids other than Fat	...	...	...	...	15-0	85-0	37-6	40-6
the Milk. { Total Solids ...	...	...	...	...	Total ...	Deductions ...	18-5	19-2
Actual weight of Fat, in lbs. ...	...	...	...	...	85-0	85-0	103-7	115-5
Calculation of Points multiply by 20...	...	...	...	...	Points gained...			
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	...	Total ...			
Calculation of Points multiply by 4 ...	...	...	...	...	Deductions ...			
Points { For time since Calving ...	...	...	...	...	Points gained...			
For weight of Milk (lbs.) ...	...	...	...	...	Total ...			
For weight of Fat (lbs. × 20) ...	...	...	...	...	Deductions ...			
For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	Points gained...			
Remarks and Awards ...	...	...	...	...	Highly Commended.			
...	...	...	...	...	Reserve.			
...	...	...	...	...	2nd Prize.			
...	...	...	...	...	Highly Commended.			

CLASS 2.—DAIRY SHORTHORN COWS (BORN AFTER 1ST AUGUST, 1917, AND PREVIOUS TO 1ST AUGUST, 1919)—Continued.

Number ...	...	...	...	52	53	54	56
Name ...	...	...	...	Leazow Scrapina 9th	Filly Duchess.	Longhills Melody.	Grendon Beatrice.
Born ...	...	...	...	Sept. 20, 1918.	Feb. 7, 1919.	Sept. 1, 1918.	Oct. 4, 1917.
Number of Calves ...	...	...	...	1	2	—	—
Last Calved ...	...	...	...	Sept. 24.	Aug. 10.	Sept. 17.	Sept. 23.
Days since Calving ...	...	...	...	22	78	29	23
Live weight, in lbs. ...	...	...	...	1,330	1,384	1,172	1,392
Weight of Milk, 1st day ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	...	...	16-0 17-6	18-4 16-5	33-8 27-0	23-9 21-6
Total ...	...	...	...	17-7 13-9	19-7 17-4	34-2 26-0	24-4 21-8
Average ...	...	...	...	33-7 31-5	38-1 33-9	68-0 53-0	48-3 43-4
Percentage { Fat ...	...	...	...	16-8 15-7	19-0 16-9	34-0 26-5	24-1 21-7
Composition { Solids other than Fat	...	...	...	3-83 4-96	2-88 4-73	2-78 4-27	3-00 4-20
the Milk. { Total Solids	...	...	...	9-51 9-08	9-00 8-73	9-10 8-89	9-34 9-00
Actual weight of Fat, in lbs. ...	...	...	...	13-34 14-04	11-88 13-46	11-88 13-16	12-34 13-20
Calculation of Points multiply by 20...	...	...	...	64 .78	55 .79	95 1-24	72 .91
Actual weight of Solids other than Fat, in lbs.	...	...	...	12-80 15-60	11-00 15-80	19-00 24-80	14-40 18-20
Calculation of Points multiply by 4 ...	...	...	...	1-60 1-42	1-71 1-48	3-10 2-35	2-25 1-95
Points { For time since Calving	...	...	...	6-40 5-68	6-84 5-92	12-40 9-40	9-00 7-80
{ For weight of Milk (lbs.)	...	...	...	32-5	35-9	60-5	45-8
{ For weight of Fat (lbs. × 20)	...	...	...	28-4	26-8	43-8	32-6
{ For weight of Solids other than Fat	...	...	...	12-1	12-8	21-8	16-8
(lbs. × 4)	...	...	...	73-0	75-5	126-1	95-2
Total ...	...	...	...	—	10-0	10-0	—
Deductions ...	...	...	...	73-0	65-5	116-1	95-2
Points gained...	...	...	...	...	...	...	...
Remarks and Awards ...	...	...	...	...	...	1st Prize, Shorthorn Society's Prize.	Highly Commended

CLASS 3.—DAIRY SHORTHORN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919).

Number ...	...	...	...	57 Bare Rosette.	59 Duncombe Gwynne 2nd.	60 Hethersett Snowstorm 3rd.	63 Queen Marlon.
Name ...	...	...	...	Oct. 16, 1919.	Sept. 2, 1919.	Nov. 12, 1919.	Oct. 3, 1919.
Born ...	...	...	...	Aug. 24. 53	May 7. 162	May 17. 152	Sept. 25. 21
Number of Calves	...	...	...	1,059	1,114	1,038	1,239
Last Calved	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Days since Calving	...	...	...	20-2 18-6	17-2 15-5	13-5 11-5	13-0 11-1
Live weight, in lbs.	...	...	...	21-2 17-4	17-9 13-7	14-0 12-3	14-3 11-3
	...	...	...	41-4 36-0	35-1 29-2	27-5 23-8	27-3 22-4
Weight of Milk, 1st day	...	...	...	20-7 18-0	17-5 14-6	13-7 11-9	13-6 11-2
Weight of Milk, 2nd day	...	...	...	3-53 4-01	4-17 4-01	4-16 4-67	4-15 4-20
Total	...	...	...	9-17 8-99	9-05 8-89	9-58 9-43	9-17 9-06
Average ...	...	...	...	12-70 13-00	13-22 12-90	13-74 14-10	13-32 13-26
Percentage { Fat ...	...	...	...	7-3 7-2	7-3 6-0	5-7 5-6	5-6 4-7
Composition of { Solids other than Fat	...	...	...	14-60 14-40	14-60 12-00	11-40 11-20	11-20 9-40
the Milk. { Total Solids	...	...	...	1-91 1-62	1-58 1-30	1-32 1-13	1-25 1-02
Actual weight of Fat, in lbs. ...	...	...	...	7-64 6-48	6-32 5-20	5-28 4-52	5-00 4-08
Calculation of Points multiply by 20...	...	...	...	1-3	12-0	11-2	—
Actual weight of Solids other than Fat, in lbs.	...	...	...	38-7	32-1	25-6	24-8
Calculation of Points multiply by 4 ...	...	...	...	29-0	26-6	22-6	20-6
Points { For time since Calving	...	...	...	14-1	11-5	9-8	9-1
{ For weight of Milk (lbs.)	...	...	...	83-1	82-2	69-2	54-5
{ For weight of Fat (lbs. × 20)	...	...	...	—	—	—	—
{ For weight of Solids other than Fat	...	...	...	83-1	82-2	69-2	54-5
(lbs. × 4) ...	...	...	...	83-1	82-2	69-2	54-5
Total ...	...	...	...	1st Prize, Shorthorn Society's Prize.	3rd Prize.	Highly Commended.	—
Deductions ...	...	...	...	...	...	...	...
Points gained...	...	...	...	...	...	...	...
Remarks and Awards ...	...	...	...	...	...	...	...

CLASS 3.—DAIRY SHORTHORN HEIFERS (BOEN ON OR AFTER 1ST AUGUST, 1919).—Continued.

Number ...	...	...	...	64 Barrington Queen.	66 Histon Mabel 3rd.	69 Thornby Dusky 2nd	70 Thimham Budget 12th
Name ...	...	...	...	Feb. 5, 1920.	Aug. 14, 1919.	Oct. 18, 1919.	Nov. 11, 1919.
Born ...	...	...	...	Sept. 16.	Aug. 23.	Sept. 29.	Sept. 23.
Number of Calves	...	...	...	30	54	17	23
Last Calved ...	...	...	...	1,108	1,318	1,216	996
Days since Calving	...	...	...	Morn	Morn	Morn	Morn
Live weight, in lbs.	...	...	...	Even	Even	Even	Even
Weight of Milk, 1st day	...	...	...	20-3	16-5	21-5	19-1
Weight of Milk, 2nd day	...	...	...	15-8	14-0	19-6	18-4
Total	...	...	...	41-3	30-8	41-1	37-5
Average	...	...	...	20-6	15-4	20-5	18-7
Percentage { Fat ...	...	...	...	3-12	4-66	3-64	4-27
Composition of { Solids other than Fat	...	...	...	9-06	8-48	9-66	9-01
the Milk. { Total Solids	...	...	...	12-18	13-24	13-30	13-28
Actual weight of Fat, in lbs. ...	...	...	...	-64	-83	-75	-80
Calculation of Points multiply by 20...	...	...	...	12-80	14-00	15-00	16-00
Actual weight of Solids other than Fat, in lbs.	...	...	...	1-86	1-51	1-97	1-68
Calculation of Points multiply by 4 ...	...	...	...	7-44	6-04	7-88	6-72
Points { For time since Calving For weight of Milk (lbs.) ... For weight of Fat (lbs. × 20) For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	36-8	33-2	36-9	35-3
	...	...	...	25-6	30-6	31-2	34-8
	...	...	...	13-1	11-4	14-0	12-4
	...	...	...	75-5	76-6	82-1	82-5
Total ...	...	...	...	—	10-0	—	—
Deductions	...	...	...	75-5	66-6	82-1	82-5
Points gained...	...	...	...	Highly Commended.	Highly Commended.	Reserve.	2nd Prize, Shorthorn Society's Prize.
Remarks and Awards ...	...	...	...	Highly Commended.	Highly Commended.	Reserve.	2nd Prize, Shorthorn Society's Prize.

CLASS 3.—DAIRY SHORTHORN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919)—Continued

Number ...	Name	73 Musical Poggathorpe	77 Sudborough Favourite 2nd	82 Beau Manor Princess
Born	Dec. 12, 1919.	Dec. 19, 1919.	Dec. 12, 1919.
Number of Calves
Last Calved	Sept. 16.	Aug. 16.	Sept. 9.
Days since Calving	30	61	37
Live weight, in lbs.	1,052	1,038	1,380
Weight of Milk, 1st day	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	12.7 12.1	19.1 15.3	16.5 13.6
Total	14.4 11.2	18.9 14.7	16.2 12.9
Average	27.1 23.3	38.0 30.0	32.7 26.5
Percentage { Fat	13.5 11.6	19.0 15.0	16.3 13.2
Composition of { Solids other than Fat	3.49 4.48	4.47 5.10	3.30 4.26
the Milk. { Total Solids	9.49 9.14	9.43 9.06	9.36 9.30
Actual weight of Fat, in lbs.	12.98 13.62	13.90 14.16	12.66 13.56
Calculation of Points multiply by 20...47 .52	.85 .77	.54 .56
Actual weight of Solids other than Fat, in lbs.	9.40 10.40	17.00 15.40	10.80 11.20
Calculation of Points multiply by 4	1.28 1.05	1.79 1.36	1.48 1.22
Points { For time since Calving	5.12 4.20	7.16 5.44	5.92 4.88
For weight of Milk (lbs.)	—	2.1	—
For weight of Fat (lbs. × 20)	25.1	34.0	29.5
For weight of Solids other than Fat	19.8	32.4	22.0
(lbs. × 4)	9.3	12.6	10.8
Total	54.2	81.1	62.3
Deductions	—	—	—
Points gained...	54.2	81.1	62.3
Remarks and Awards	Very Highly Commended.		

CLASS 4.—DAIRY SHORTHORN COWS (NOT ELIGIBLE FOR CLASSES 1 AND 2).

Number ...	...	84	85	87	88
Name ...	...	N 6472	Ruby	Maisey 2nd	Charming Lass
Born ...	...	—	—	—	—
Number of Calves ...	...	—	—	—	—
Last Calved ...	...	Sept. 20,	Sept. 6,	Sept. 6,	Sept. 15,
Days since Calving ...	...	26	40	40	31
Live weight, in lbs. ...	...	1,269	1,270	1,446	1,340
Weight of Milk, 1st day ...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	29-0 23-9	31-0 22-7	29-1 23-6	33-3 26-3
Total ...	...	29-5 24-2	29-0 22-6	29-2 24-8	30-1 26-8
Average ...	...	58-5 48-1	60-0 45-3	58-3 48-4	63-4 53-1
Percentage of Fat ...	...	29-2 24-0	30-0 22-6	29-1 24-2	31-7 26-5
Composition of the Milk. { Fat ...	...	3-41 4-42	3-22 3-56	3-50 4-03	2-79 4-65
{ Solids other than Fat ...	...	9-15 8-80	8-98 8-90	8-76 8-37	9-25 9-09
{ Total Solids ...	...	12-56 13-22	12-20 12-46	12-26 12-60	12-04 13-74
Actual weight of Fat, in lbs. ...	...	83 1-06	97 80	1-02 98	89 1-24
Calculation of Points multiply by 20... ..	...	16-60 21-20	19-40 16-00	20-40 19-60	17-80 24-80
Actual weight of Solids other than Fat, in lbs. ...	...	2-23 2-12	2-69 2-02	2-55 2-07	2-94 2-42
Calculation of Points multiply by 4 ... ..	...	8-92 8-48	10-76 8-08	10-20 8-28	11-76 9-68
Points { For time since Calving ...	...	53-2	52-6	53-3	58-2
{ For weight of Milk (lbs.) ...	...	37-8	35-4	40-0	42-6
{ For weight of Fat (lbs. \times 20) ...	...	17-4	18-8	18-5	21-4
{ For weight of Solids other than Fat (lbs. \times 4) ...	...	108-4	106-8	111-8	122-2
Total ...	...	—	—	—	10-0
Deductions ...	...	108-4	106-8	111-8	112-2
Points gained... ..	...	—	—	—	—
Remarks and Awards ... ..	...	—	—	Highly Commended	Reserve Dairy Shorthorn Association's Prize

CLASS 4.—DAIRY SHORTHORN COWS (NOT ELIGIBLE FOR CLASSES 1 AND 2)—Continued.

Number ...	91	93	97	98
Name ...	Martha.	Dolly.	Lady Wilson.	Lady Danson.
Born ...	—	1917.	1916.	1916.
Number of Calves ...	—	2	—	—
Last Calved ...	Sept. 20.	Sept. 22.	Sept. 27.	Oct. 3.
Days since Calving ...	26	24	19	13
Live weight, in lbs. ...	1,418	1,224	1,318	1,253
Weight of Milk, 1st day ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	27.7 22.7	27.3 21.7	32.3 27.0	25.1 22.8
Total ...	25.6 21.5	27.9 24.1	31.9 26.0	27.9 23.7
Average ...	53.3 44.2	55.2 45.8	64.2 53.0	53.0 46.5
Percentage ...	26.6 22.1	27.6 22.9	32.1 26.5	26.5 23.2
Composition of ...	4.19 4.73	4.38 5.14	3.90 4.57	3.90 4.99
the Milk. ...	9.43 9.37	9.42 9.04	9.16 8.93	9.30 9.01
Total Solids ...	13.62 14.10	13.80 14.18	13.06 13.50	13.20 14.00
Actual weight of Fat, in lbs. ...	1.11 1.04	1.22 1.18	1.26 1.24	1.04 1.16
Calculation of Points multiply by 20 ...	22.20 20.80	24.40 23.60	25.20 24.80	20.80 23.20
Actual weight of Solids other than Fat, in lbs. ...	2.43 2.05	2.60 2.07	2.94 2.37	2.47 2.10
Calculation of Points multiply by 4 ...	9.92 8.20	10.40 8.28	11.76 9.48	9.88 8.40
Points ...	48.7	50.5	58.6	49.7
For weight of Milk (lbs.) ...	43.0	48.0	50.0	44.0
For weight of Fat (lbs. × 20) ...	18.1	18.7	21.2	18.3
For weight of Solids other than Fat (lbs. × 4) ...	109.8	117.2	129.8	112.0
Total ...	109.8	117.2	129.8	112.0
Deductions ...	—	—	—	—
Points gained... ..	109.8	117.2	129.8	112.0
Remarks and Awards ...	...	2nd Prize.	1st Prize.	Highly Commended.

CLASS 4.—DAIRY SHORTHORN COWS (NOT ELIGIBLE FOR CLASSES 1 AND 2).—Continued.

Number ... Name ...	...	...	...	...	99 Muriel	103 Fair Queen.	104 Buttercup.
Born ...	...	...	...	...	—	—	—
Number of Calves	...	...	...	...	Sept. 18.	Sept. 28.	Sept. 28.
Last Calved	...	...	...	...	28	18	18
Days since Calving	...	...	...	...	1,185		
Live weight, in lbs.	...	...	...	...	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day	...	...	...	...	31.1 25.7	17.1 19.3	20.6 20.2
Weight of Milk, 2nd day	...	...	...	...	29.1 28.1	16.9 16.1	19.7 21.6
Total	...	...	...	...	60.2 53.8	33.0 36.4	40.3 41.8
Average ...	...	...	...	...	30.1 26.9	16.5 18.2	20.1 20.9
Percentage { Fat ...	...	...	...	...	3.23 5.58	3.90 4.82	3.15 4.18
Composition of { Solids other than Fat	...	...	...	...	9.19 8.34	9.60 9.30	9.89 9.56
the Milk. { Total Solids	...	...	...	...	12.42 13.92	13.50 14.12	13.04 13.74
Actual weight of Fat, in lbs. ...	...	...	...	...	.97 1.50	.66 .85	.63 .87
Calculation of Points multiply by 20 ...	...	...	...	...	19.40 30.00	13.20 17.00	12.60 17.40
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	2.76 2.24	1.64 1.04	1.99 2.03
Calculation of Points multiply by 4 ...	...	...	...	...	11.04 8.96	6.56 6.56	7.96 8.12
Points { For time since Calving For weight of Milk (lbs.) For weight of Fat (lbs. × 20) For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	—	—	—
	...	...	...	...	57.0	34.7	41.0
	...	...	...	...	49.4	30.2	30.0
	...	...	...	...	20.0	13.1	16.1
Total ...	...	...	...	...	126.4	78.0	87.1
Deductions	...	...	...	...	10.0	—	—
Points gained...	...	...	...	...	116.4	78.0	87.1
Remarks and Awards ...	...	...	...	...	3rd Prize.		

CLASS 5.—DAIRY SHORTHORN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919 NOT ELIGIBLE FOR CLASS 3).

Number	106 Hefty.	108 Pride.	110 May Queen.	111 Edincoff Buttercup.
Name
Born	1920.	Sept. 21, 1919.	Nov. 15, 1919.
Number of Calves
Last Calved	Sept. 27.	Sept. 1.	Aug. 22.	Aug. 28.
Days since Calving	19	45	55	49
Live weight, in lbs.	1,052	1,062	1,216	1,028
Weight of Milk, 1st day	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	16.7 14.8	24.5 19.0	17.2 14.3	20.7 15.7
Total	13.7 14.4	22.2 19.9	14.0 13.5	18.7 16.2
Average	30.4 29.2	46.7 38.9	31.2 27.8	39.4 31.9
Percentage { Fat	15.2 14.6	23.3 19.4	15.6 13.9	19.7 15.9
Composition of { Solids other than Fat	3.41 5.42	3.39 3.46	3.46 4.04	3.16 3.38
the Milk. { Total Solids	9.43 8.98	9.27 9.30	8.98 9.30	9.42 9.56
Actual weight of Fat, in lbs.	12.84 14.40	12.66 12.76	12.44 13.34	12.58 12.94
Calculation of Points multiply by 20... {62 .79	.79 .67	.54 .56	.615 .54
Actual weight of Fat, in lbs.	10.4 15.8	15.8 13.4	10.8 11.2	12.30 10.8
Calculation of Points multiply by 4 ... {	1.45 1.32	2.16 1.80	1.40 1.30	1.84 1.52
Actual weight of Solids other than Fat, in lbs.	5.80 5.28	8.64 7.20	5.60 5.20	7.36 6.08
Calculation of Points multiply by 4 ... {5	1.5	.9
For time since Calving	29.8	42.7	29.5	35.6
For weight of Milk (lbs.)	26.2	29.2	22.0	23.1
For weight of Fat (lbs. × 20)	11.08	15.8	10.8	13.4
For weight of Solids other than Fat (lbs. × 4)
Total	67.1	88.2	63.8	73.0
Deductions
Points gained... {	67.1	88.2	63.8	73.0
Remarks and Awards	1st Prize.	...	2nd Prize.

CLASS 6.—LINCOLN RED SHORTHORN COWS—Continued.

Number ...	...	...	...	...	...	117	119	121	123
Name ...	...	...	...	...	...	Burton Cherry 4th.	Burton Ruby Spot 14th	Bendish Nancy.	Bendish Freda 2nd.
Born ...	...	...	...	...	...	Sept. 23, 1917.	Sept. 7, 1915.	July 31, 1911.	Oct. 15, 1915.
Number of Calves	...	...	...	...	...	3	4	—	—
Last Calved ...	...	...	...	...	...	Sept. 9.	Sept. 4.	Aug. 29.	Aug. 24.
Days since Calving	...	...	...	...	...	37	42	48	53
Live weight, in lbs.	...	...	...	...	...	1,250	1,326	1,346	1,433
Weight of Milk, 1st day	...	...	...	...	...	Morn	Morn	Morn	Morn
Weight of Milk, 2nd day	...	...	...	...	...	28-6	41-9	33-0	28-3
Total	...	...	...	...	...	27-4	35-4	31-2	24-5
Average	...	...	...	...	...	56-0	77-3	64-2	52-8
Percentage of Fat ...	...	...	...	...	...	28-0	38-6	32-1	26-4
Composition of Solids other than Fat the Milk.	...	...	...	...	...	2-80	4-81	2-47	3-17
Actual weight of Fat, in lbs.	...	...	...	...	...	9-30	8-81	9-13	8-85
Calculation of Points multiply by 20...	...	...	...	...	...	12-10	13-62	11-60	12-02
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	7-8	1-88	7-9	8-4
Calculation of Points multiply by 4	...	...	...	...	...	15-6	25-2	15-8	16-8
Points	...	...	...	...	...	2-74	3-10	2-94	2-34
For time since Calving	...	...	...	...	...	10-96	12-40	11-76	9-36
For weight of Milk (lbs.)	...	...	...	...	...	54-6	65-4	59-5	47-8
For weight of Fat (lbs. × 20)	...	...	...	...	...	38-6	62-8	30-1	30-5
For weight of Solids other than Fat (lbs. × 4)	...	...	...	...	...	21-0	22-2	21-8	17-1
Total	...	...	...	...	...	114-2	150-6	112-2	96-7
Deductions	...	...	...	...	...	10-0	—	20-0	—
Points gained...	...	...	...	...	...	104-2	150-6	92-2	96-7
Remarks and Awards	...	...	...	...	...	Highly Commended.	1st Prize.	—	—

CLASS 7.—LINCOLN RED SHORTHORN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919).

Number ...	...	124	126	127	128
Name ...	...	Langford Danse 15th	Bracebridge Opal 3rd	Barton Hagahby 1st and	Barton Bettina 6th.
Born ...	...	Nov. 14, 1919.	Dec. 1, 1919.	Aug. 13, 1919.	Sept. 21, 1919.
Number of Calves ...	...	—	—	1	1
Last Calved ...	...	Sept. 12.	Sept. 21.	Aug. 30.	Aug. 29
Days since Calving ...	...	34	25	47	48
Live weight, in lbs. ...	...	1,150	1,026	1,110	1,012
Weight of Milk, 1st day ...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	20.9 16.9	18.2 15.5	23.8 17.9	20.2 16.6
Total ...	...	18.5 17.3	19.2 18.5	21.2 17.4	19.3 15.4
Average ...	...	39.4 34.2	37.4 34.0	45.0 35.3	39.5 32.0
Percentage { Fat ...	...	19.7 17.1	18.7 17.0	22.5 17.6	19.7 16.0
Composition of { Solids other than Fat	...	4.37 4.35	2.55 3.79	3.52 3.19	2.87 3.40
the Milk. { Total Solids	...	8.93 9.25	9.25 9.37	9.04 9.25	9.27 9.40
Actual weight of Fat, in lbs. ...	...	13.30 13.60	11.80 13.16	12.56 12.44	12.14 12.80
Calculation of Points multiply by 20...	...	86 .74	475 .64	.79 .56	.565 .545
Actual weight of Solids other than Fat, in lbs.	...	17.2 14.8	9.50 12.80	15.8 11.2	11.30 10.90
Calculation of Points multiply by 4 ...	...	1.74 1.38	1.54 1.60	2.04 1.62	1.83 1.51
Points { For time since Calving	...	6.96 6.32	6.16 6.40	8.16 6.48	7.32 6.04
{ For weight of Milk (lbs.)	...	—	—	.7	.8
{ For weight of Fat (lbs. × 20)	...	36.8	35.7	40.1	35.7
{ For weight of Solids other than Fat	...	32.0	22.3	27.0	22.2
(lbs. × 4) ...	...	13.3	12.6	14.6	13.4
Total ...	...	82.1	70.6	82.4	72.1
Deductions ...	...	—	16.0	—	10.0
Points gained...	...	82.1	60.6	82.4	62.1
Remarks and Awards ...	...	2nd Prize.		1st Prize.	

CLASS 7.—LINCOLN RED SHORTHORN HELPERS (BORN ON OR AFTER 1ST AUGUST, 1919)—Continued.

Number ...	...	...	...	...	...	129
Name ... *	...	...	...	...	...	Burton Patchy 4th.
Born ...	...	...	...	...	...	Aug 24, 1919.
Number of Calves	...	...	...	...	...	1
Last Calved	...	...	...	...	...	Sept 3.
Days since Calving	...	...	...	...	...	43
Live weight, in lbs.	...	...	...	...	...	1,000
Weight of Milk, 1st day	...	...	...	...	...	Morn Even
Weight of Milk, 2nd day	...	...	...	...	...	18.1 14.8
Total	...	...	...	...	...	17.3 13.7
Average	...	...	...	...	...	35.4 28.5
Percentage { Fat ...	...	...	...	...	...	17.7 14.2
Composition of { Solids other than Fat	...	...	...	...	...	4.23 3.82
the Milk. { Total Solids	...	...	...	...	...	9.27 9.48
Actual weight of Fat, in lbs. ...	...	...	...	...	...	13.30 13.30
Calculation of Points multiply by 20...	...	...	...	...	...	.75 .54
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	15.0 10.8
Calculation of Points multiply by 4 ...	...	...	...	...	...	1.64 1.35
Points { For time since Calving	...	...	...	...	...	6.56 5.40
{ For weight of Milk (lbs.)	...	...	...	...	...	.3
{ For weight of Fat (lbs. × 20)	...	...	...	...	...	31.9
{ For weight of Solids other than Fat	...	...	...	...	...	25.8
(lbs. × 4) ...	...	...	...	...	...	12.0
Total ...	...	...	...	...	...	70.0
Deductions	...	...	...	...	...	—
Points gained...	...	...	...	...	...	70.0
Remarks and Awards ...	...	...	...	...	...	3rd Prize.

CLASS 8.—JERSEY COWS.

Number Name	131 Dock.	136 Jersey Beauty.	137 Kingston Fairy.	138 Somerset Ceres.
Born	Sept. 7, 1912.	May 25, 1918.	June 12, 1919.	May 17, 1919.
Number of Calves	8	3	2	2
Last Calved	July 17.	—	May 3.	July 29.
Days since Calving	91	—	166	79
Live weight, in lbs.	811	719	818	724
Weight of Milk, 1st day	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	15.8 11.5	21.3 15.0	15.5 13.4	13.8 8.6
Total	15.5 12.5	14.4 12.6	14.4 11.5	14.6 12.5
Average	31.3 24.0	35.7 27.6	29.9 24.9	28.4 21.1
Percentage of Fat	15.6 12.0	17.8 13.8	14.9 12.4	14.2 10.5
Composition of the Milk.	3.95 4.55	6.23 5.17	5.26 5.11	4.98 4.78
Actual weight of Fat, in lbs.	9.01 9.25	8.93 9.37	9.82 9.49	9.24 9.02
Calculation of Points multiply by 20...	12.96 13.80	15.16 14.54	15.08 14.60	14.22 13.80
Actual weight of Solids other than Fat, in lbs.	61.5 .55	1.11 .715	.785 .635	.71 .50
Calculation of Points multiply by 4 ...	12.30 11.00	22.2 14.30	15.70 12.70	14.20 10.0
Points	1.41 1.11	1.59 1.29	1.47 1.18	1.31 .95
For time since Calving	5.64 4.44	6.36 5.16	5.88 4.72	5.24 3.80
For weight of Fat (lbs. × 20)	—	—	—	—
For weight of Solids other than Fat (lbs. × 4) ...	27.6 23.3	31.6 36.5	27.3 28.4	3.9 24.7 24.2
Total ...	10.1	11.5	10.6	9.0
Deductions	61.0	79.6	78.3	61.8
Points gained	61.0	79.6	78.3	61.8
Remarks and Awards				

CLASS 8.—JERSEY COWS—Continued.

Number ...	139	143	145	146
Name ...	Duchess of Aldan.	Mikylene.	Capsella.	June Louise.
Born ...	June 6, 1914.	Dec. 8, 1915.	Feb. 25, 1917.	June 5, 1917.
Number of Calves ...	7	5	4	3
Last Calved ...	Aug. 21.	July 2.	July 17.	Sept. 10.
Days since Calving ...	56	106	91	36
Live weight, in lbs. ...	730	1,066		792
Weight of Milk, 1st day ...	Morn	Morn	Morn	Morn
Weight of Milk, 2nd day ...	Even	Even	Even	Even
Total ...	12.2 10.4	21.2 14.6	19.4 15.8	24.2 16.3
Average ...	12.3 8.3	21.4 13.5	19.4 15.6	18.5 15.7
Percentage of Fat ...	24.5 18.7	42.6 28.1	38.8 31.4	42.7 32.0
Composition of Solids other than Fat ...	12.2 9.3	21.3 14.0	19.4 15.7	21.3 16.0
Total Solids ...	5.33 5.66	3.93 3.67	3.00 3.80	5.16 5.37
Actual weight of Fat, in lbs. ...	9.53 9.72	8.77 9.23	8.96 9.10	9.50 9.41
Calculation of Points multiply by 20 ...	14.86 15.38	12.70 12.90	11.96 12.90	14.66 14.78
Actual weight of Solids other than Fat, in lbs. ...	.65 .53	.84 .515	.58 .60	1.10 .86
Calculation of Points multiply by 4 ...	13.0 10.6	16.8 10.30	11.6 12.0	22.0 17.2
Points ...	1.16 .90	1.87 1.29	1.74 1.43	2.02 1.51
For time since Calving ...	4.64 3.60	7.48 5.16	6.96 5.72	8.08 6.04
For weight of Milk (lbs.) ...	1.6	6.6		
For weight of Fat (lbs. × 20) ...	21.5	35.3	35.1	37.3
For weight of Solids other than Fat (lbs. × 4) ...	23.6	27.1	23.6	39.2
Total ...	8.2	12.6	12.7	14.1
Deductions ...	54.9	81.6	71.4	90.6
Points gained ...	54.9	81.6	71.4	90.6
Remarks and Awards ...				Highly Commended.

Class 8.—JERSEY COWS—Continued.

Number Name	147 Piquant.	152 Choir Mistress.	153 Rochette Rose.	154 Dahla 4th
Born	Aug. 21, 1919.	July 29, 1919.	July 7, 1918.	Aug. 25, 1912.
Number of Calves	2	—	3	—
Last Calved	May 15.	May 26.	July 14.	June 4.
Days since Calving	154	143	94	134
Live weight, in lbs.	804	838	743	803
Weight of Milk, 1st day	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	19-5 15-4	14-2 10-9	16-3 12-7	24-8 20-8
Total	20-5 14-7	13-5 10-4	16-3 12-8	28-2 20-0
Average	40-0 30-1	27-7 21-3	32-6 25-5	53-0 40-8
Percentage of Fat	20-0 15-0	13-8 10-6	16-3 12-7	26-5 20-4
Composition of Solids other than Fat	5-16 5-80	5-03 5-18	4-68 4-29	3-67 4-17
the Milk. { Total Solids	8-84 9-22	9-43 9-70	8-88 9-19	8-67 9-03
Actual weight of Fat, in lbs. ...	14-00 14-52	14-46 14-88	13-56 13-48	12-34 13-20
Calculation of Points multiply by 20...	1-03 -795	-695 -55	-76 -545	-97 -85
Actual weight of Solids other than Fat, in lbs.	20-6 15-9	13-90 11-0	15-2 10-9	19-4 17-0
Calculation of Points multiply by 4 ...	1-77 1-88	1-3 1-06	1-45 1-17	2-30 1-85
Points { For time since Calving	7-08 5-52	5-2 4-24	5-80 4-68	9-20 7-40
For weight of Milk (lbs.) ...	11-4	10-3	5-4	9-4
For weight of Fat (lbs. × 20)	35-0	24-4	29-0	46-9
For weight of Solids other than Fat (lbs. × 4) ...	36-5	24-9	26-1	36-4
Total	12 6	9-4	10 5	16-6
Deductions	95-5	69-0	71-0	109-3
Points gained...	95-5	69-0	71-0	109-3
Remarks and Awards ...	3rd Prize.			1st Prize.

CLASS 8.—JERSEY COWS—Continued.

Number ...	161	162	163	164
Name ...	Naamah.	You'll Do Orange	Tidy White	Lily
Born ...	May 2, 1918.	July 13, 1916.	June 2, 1918.	May 22, 1915.
Number of Calves ...	3	1	—	—
Last Calved ...	July 1.	June 2.	Sept. 8.	May 27.
Days since Calving ...	107	136	38	142
Live weight, in lbs. ...	815	791	884	805
Weight of Milk, 1st day ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	14.1 10.9	17.6 13.1	19.7 18.1	16.1 13.2
Total ...	15.6 11.8	10.2 9.6	20.0 18.7	17.1 13.3
Average ...	29.7 22.7	27.8 22.7	39.7 36.8	33.2 26.5
Percentage { Fat ...	14.8 11.3	13.9 11.3	19.8 18.4	16.6 13.2
Composition of { Solids other than Fat	5.34 6.45	5.32 5.18	4.45 5.36	5.32 5.07
the Milk. { Total Solids	9.40 9.35	8.96 9.32	9.31 8.78	8.96 9.45
Actual weight of Fat, in lbs. ...	14.74 15.80	14.28 14.50	13.76 14.14	14.28 15.12
Calculation of Points multiply by 20...	.79 .73	.74 .585	.88 .99	.88 .75
Actual weight of Solids other than Fat, in lbs.	15.8 14.6	14.8 11.70	17.6 19.8	17.6 15.00
Calculation of Points multiply by 4 ...	1.39 1.05	1.25 1.05	1.85 1.63	1.49 1.25
Points { For time since Calving	5.56 4.20	5.00 4.20	7.40 6.52	5.96 5.00
{ For weight of Milk (lbs.)	6.7	9.6	—	10.2
{ For weight of Fat (lbs. × 20)	26.1	25.2	38.2	29.8
{ For weight of Solids other than Fat (lbs. × 4)	30.4	26.5	37.4	32.6
Total ...	9.8	9.2	13.9	11.0
Deductions ...	73.0	70.5	89.5	83.6
Points gained...	73.0	70.5	89.5	83.6
Remarks and Awards ...	...	...	...	...

CLASS 9.—JERSEY HEIFER (BORN ON OR AFTER 1ST AUGUST, 1919. BRED IN GREAT BRITAIN OR IRELAND).

Number ...	...	...	...	...	170	173	174	177
Name ...	...	...	...	...	Heather of Hollywood	Springtime.	Spring Pamela.	Wotton Beauve.
Born ...	...	...	...	...	Aug 9, 1919.	May 14, 1920.	May 5, 1920.	Sept 13, 1919.
Number of Calves ...	...	...	...	...	1	—	—	1
Last Calved ...	...	...	...	...	June 22.	Aug. 13.	Sept. 12.	Sept. 10.
Days since Calving ...	...	...	...	...	116	64	34	36
Live weight, in lbs. ...	...	...	...	...	773	854	754	763
Weight of Milk, 1st day ...	...	...	...	...	Morn	Morn	Morn	Morn
Weight of Milk, 2nd day ...	...	...	...	...	Even	Even	Even	Even
Total ...	...	...	...	...	12.6	13.1	15.5	17.3
Average ...	...	...	...	...	11.6	11.9	14.8	15.4
Percentage ...	...	...	...	...	13.6	14.3	15.6	19.7
Composition of ...	...	...	...	...	26.2	27.4	31.1	37.0
the Milk. ...	...	...	...	...	23.0	24.0	28.4	30.9
Actual weight of Fat, in lbs. ...	...	...	...	...	13.1	13.7	15.5	18.5
Calculation of Points multiply by 20 ...	...	...	...	...	11.5	12.0	14.2	15.4
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	...	4.88	5.99	4.60	5.41
Calculation of Points multiply by 4 ...	...	...	...	...	9.44	9.67	9.34	9.37
Points ...	...	...	...	...	14.32	15.00	13.94	14.78
For time since Calving ...	...	...	...	...	64	82	71	81
For weight of Milk (lbs.) ...	...	...	...	...	12.8	16.4	14.2	20.00
For weight of Fat (lbs. × 20) ...	...	...	...	...	1.24	1.32	1.45	1.74
For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	4.96	5.28	5.80	6.96
Total ...	...	...	...	...	7.6	2.4	—	—
Deductions ...	...	...	...	...	24.6	25.7	29.7	33.9
Points gained... (lbs. × 4) ...	...	...	...	...	26.4	34.4	30.3	36.2
Total ...	...	...	...	...	9.2	9.8	10.9	13.2
Deductions ...	...	...	...	...	67.8	72.3	70.9	83.3
Points gained... (lbs. × 4) ...	...	...	...	...	67.8	72.3	70.9	83.3
Remarks and Awards ...	...	...	...	...	Highly Commended.	Reserve.	Highly Commended.	2nd Prize.

CLASS 9. — JERSEY HEIFER (BORN ON OR AFTER 1ST AUGUST, 1919. BREED IN GREAT BRITAIN OR IRELAND.) — Continued

Number ...	178	179	182	186
Name ...	Snow Bird	Thyme	Princess Marigold.	Kingsfon Beauty.
Born ...	Dec. 10, 1919.	Jan. 5, 1920.	April 26, 1920.	Sept 3, 1920.
Number of Calves ...	1	—	1	—
Last Calved ...	June 4.	Aug. 25.	Aug. 1.	—
Days since Calving ...	134	52	76	—
Lave weight, in lbs. ...	...	838	724	708
Weight of Milk, 1st day ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	13-0 11-7	19-2 16-9	14-8 13-0	16-6 15-0
Total ...	12-8 10-7	20-9 18-4	17-4 13-6	15-3 12-0
Average ...	25-8 22-4	40-1 35-3	32-2 26-6	31-9 27-0
Percentage of Fat ...	12-9 11-2	20-0 17-6	16-1 13-3	15-9 13-5
Composition of Solids other than Fat the Milk.	5-87 6-85	4-44 6-23	4-45 5-20	4-35 4-74
Actual weight of Fat, in lbs. ...	9-33 9-11	9-04 8-77	9-05 8-82	9-21 9-28
Calculation of Points multiply by 20...	15-20 15-96	13-48 15-00	13-50 14-02	13-56 14-02
Actual weight of Solids other than Fat, in lbs.	7-6 7-55	8-9 1-10	7-15 6-69	6-69 6-64
Calculation of Points multiply by 4 ...	15-2 15-1	17-8 22-0	14-3 13-8	13-8 12-8
Points	1-21 1-03	1-80 1-54	1-46 1-17	1-46 1-27
For time since Calving ...	4-84 4-12	7-20 6-16	5-84 4-68	5-84 5-08
For weight of Milk (lbs.) ...	9-4	1-2	3-6	—
For weight of Fat (lbs. × 20) ...	24-1	37-6	29-4	29-4
For weight of Solids other than Fat (lbs. × 4) ...	30-3	39-8	28-1	26-6
Total ...	9-0	13-4	10-5	10-9
Deductions ...	72-8	92-0	71-6	66-9
Points gained...	72-8	92-0	71-6	66-9
Remarks and Awards ...	3rd Prize.	1st Prize.	Highly Commended.	Highly Commended.

CLASS 10.—JERSEY HEIFER (BORN ON OR AFTER 1ST AUGUST, 1919, BRED IN THE CHANNEL ISLANDS).

Number	...	...	...	...	189	190	192	208
Name	...	...	...	...	Rosebay of the Oaks	Duchess of Carria 4th	Willonys Grey Girl	Britannia's Surprise
Born	...	...	...	...	Sept. 17, 1919.	Mar. 8, 1920.	Feb. 10, 1920.	April 18, 1920.
Number of Calves	...	...	...	...	1	—	—	1
Last Calved	...	...	...	...	Sept. 1.	June 12.	May 22, 1921.	Sept. 2.
Days since Calving	...	...	...	...	45	126	147	44
Live weight, in lbs.	...	...	...	...	691	776	764	730
Weight of Milk, 1st day	...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	...	11.4 12.4	14.7 12.2	10.0 8.7	17.3 13.6
Total	...	...	...	...	12.0 12.0	14.4 12.1	11.7 9.6	17.4 14.0
Average	...	...	...	...	23.4 24.4	29.1 24.3	21.7 18.3	34.7 27.6
Percentage { Fat ...	...	...	...	...	11.7 12.2	14.5 12.1	10.8 9.1	17.3 13.8
Composition of { Solids other than Fat	...	...	...	...	4.03 5.44	5.17 6.14	5.78 6.33	4.46 5.41
the Milk. { Total Solids	...	...	...	...	9.39 9.09	9.25 8.90	9.62 10.03	9.68 9.67
Actual weight of Fat, in lbs. ...	...	...	...	...	13.42 14.44	14.42 15.04	15.40 16.36	14.14 15.08
Calculation of Points multiply by 20...	...	...	...	...	47	75	62	75
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	9.4 13.2	15.0 14.8	12.4 11.6	15.5 15.00
Calculation of Points multiply by 4 ...	...	...	...	...	1.10 1.10	1.34 1.08	1.04 .91	1.67 1.33
Points { For time since Calving	...	...	...	...	4.40 4.40	5.36 4.32	4.16 3.64	6.68 5.32
{ For weight of Milk (lbs.)	...	...	...	...	.5	8.6	10.7	.4
{ For weight of Fat (lbs. × 20)	...	...	...	...	23.9	26.6	19.9	31.1
{ For weight of Solids other than Fat	...	...	...	...	22.6	29.8	24.0	30.5
(lbs. × 4) ...	...	...	...	...	8.8	9.7	8.2	12.0
Total	...	...	...	...	55.8	74.7	62.8	74.0
Deductions	...	...	...	...	—	—	—	—
Points gained...	...	...	...	...	55.8	74.7	62.8	74.0
Remarks and Awards	...	...	...	...	1st Prize.	3rd Prize.	2nd Prize.	

CLASS II.—GUERNSEY COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1917)

Number ...	...	...	210	211	213	215
Name ...	...	...	Glsey of Tregomling.	Enchance Bay of Manxmore 4th	Trapan Vagde 3rd	Melbet (d) or the Mead
Born ...	...	...	Mar. 17, 1917.	June 25, 1916.	Feb. 1, 1915.	Feb. 8, 1916.
Number of Calves ...	...	...	3	3	5	5
Last Calved ...	...	...	Aug. 25.	Sept. 18.	July 21.	Oct. 2.
Days since Calving ...	...	...	52	28	87	11
Live weight, in lbs. ...	...	...	977	1,064	1,097	916
	...	...	Morn	Morn	Morn	Morn
	...	...	Even	Even	Even	Even
Weight of Milk, 1st day ...	...	...	23.4	18.7	18.9	15.1
Weight of Milk, 2nd day ...	...	...	23.8	20.1	21.0	16.2
Total ...	...	...	47.2	37.8	39.9	31.3
Average ...	...	...	23.6	19.0	19.9	15.6
Percentage { Fat ...	...	...	4.41	4.40	4.40	4.29
Composition { Solids other than Fat ...	...	...	9.17	9.42	9.03	8.99
the Milk. { Total Solids ...	...	...	13.58	13.82	13.52	13.28
Actual weight of Fat, in lbs. ...	...	...	1.04	.83	.895	.67
Calculation of Points multiply by 20 ...	...	...	20.8	16.6	17.9	13.4
Actual weight of Solids other than Fat, in lbs. ...	...	...	2.10	1.78	1.80	1.40
Calculation of Points multiply by 4 ...	...	...	8.04	7.08	7.20	5.60
Points { For time since Calving ...	...	...	1.2	—	4.7	—
{ For weight of Milk (lbs.) ...	...	...	42.6	34.3	35.5	27.6
{ For weight of Fat (lbs. × 20) ...	...	...	39.8	33.6	34.5	24.0
{ For weight of Solids other than Fat (lbs. × 4) ...	...	...	15.7	13.0	12.9	10.1
Total ...	...	...	99.3	80.9	87.6	61.7
Deductions ...	...	...	—	—	—	—
Points gained ...	...	...	99.3	80.9	87.6	61.7
Remarks and Awards ...	...	...	2nd Prize Reserve for the Stagahoe (Challenge Cup.	—	3rd Prize.	—

CLASS 12.—GUERNSEY COWS (BORN AFTER 1ST AUGUST, 1917, AND PREVIOUS TO 1ST AUGUST, 1919).

Number ...	...	...	...	218	219	220	221
Name ...	...	...	...	King's Queen "Arador"	Dallia Polly 2nd.	Chlo de la Cloture.	Chlo de la Cloture.
Born ...	...	...	...	Oct. 5, 1918.	April 7, 1918.	July 16, 1918.	Mar. 30, 1919.
Number of Calves ...	...	...	...	1	2	2	2
Last Calved ...	...	...	...	Sept. 27.	July 4.	May 4.	May 19.
Days since Calving ...	...	...	...	19	104	165	150
Live weight, in lbs., ...	...	...	...	1,076	934	1,062	991
Weight of Milk, 1st day ...	...	...	...	Morn	Morn	Morn	Morn
Weight of Milk, 2nd day ...	...	...	...	Even	Even	Even	Even
Total ...	...	...	...	16.6 15.7	16.3 12.3	12.8 10.2	14.9 10.8
Average ...	...	...	...	16.9 15.1	16.2 13.3	12.5 9.9	11.2 10.3
Percentage { Fat ...	...	...	...	33.7 30.8	32.5 25.6	25.3 20.1	29.1 21.1
Composition of { Solids other than Fat	...	...	...	16.7 15.4	16.2 12.8	12.6 10.0	14.5 10.5
the Milk. { Total Solids	...	...	...	4.13 5.05	4.34 3.26	5.05 5.38	6.13 7.30
Actual weight of Fat, in lbs., ...	...	...	...	9.37 9.25	9.78 9.44	9.27 9.32	9.77 9.54
Calculation of Points multiply by 20...	...	...	...	13.60 14.30	14.12 12.70	14.32 14.70	15.90 16.81
Actual weight of Solids other than Fat, in lbs., ...	...	...	...	.69 .78	.70 .42	.63.5 .538	.89 .77
Calculation of Points multiply by 4 ...	...	...	...	13.8 15.6	14.00 8.4	12.70 10.76	17.8 15.4
Points { For time since Calving	...	...	...	1.57 1.43	1.58 1.21	1.17 .93	1.42 1.00
{ For weight of Milk (lbs.) ...	...	...	...	6.28 5.72	6.32 4.84	4.68 3.72	5.68 4.00
{ For weight of Fat (lbs. x 20)	...	...	...	32.1	6.4	12.0	11.0
{ For weight of Solids other than Fat	...	...	...	29.4	29.0	22.6	25.0
(lbs. x 4)	...	...	...	12.0	22.4	23.5	33.2
Total ...	...	...	...	73.5	11.2	8.4	9.7
Deductions ...	...	...	...	73.5	69.0	66.5	78.9
Points gained...	...	...	...	73.5	69.0	66.5	78.9
Remarks and Awards ...	...	...	...	Reserve.			1st Prize.

CLASS 12.—GUERNSEY COWS (BORN AFTER 1ST AUGUST, 1917, AND PREVIOUS TO 1ST AUGUST, 1919)—Continued.

Number ..	...	...	...	...	222	223	224
Name ..	...	...	...	...	Valeuria Saffron.	Lynchmere Rosy.	Mawgan Rose.
Born ...	...	...	...	...	June 19, 1919.	Aug. 12, 1918	Sept. 1, 1917.
Number of Calves	...	...	...	...	2	2	4
Last Calved	...	...	...	...	July 14.	Aug. 23.	Aug. 16.
Days since Calving	...	...	...	...	94	54	61
Live weight, in lbs.	...	...	...	...	1,006	946	1,006
Weight of Milk, 1st day	...	...	...	...	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	...	12.7 10.3	18.2 13.5	17.2 14.7
Total	...	...	...	...	12.9 9.8	17.8 14.6	18.8 14.2
Average	...	...	...	...	25.6 20.1	36.0 28.1	36.0 28.9
Percentage { Fat ...	...	...	...	...	12.8 10.0	18.0 14.0	18.0 14.4
Composition of { Solids other than Fat	...	...	...	...	5.75 5.52	4.76 5.77	4.89 5.01
the Milk. { Total Solids	...	...	...	...	9.41 9.44	9.22 9.09	9.11 9.11
Actual weight of Fat, in lbs.	...	...	...	...	15.16 14.96	13.98 14.86	14.00 14.12
Calculation of Points multiply by 20...	...	...	...	...	.74 .55	.86 .81	.88 .72
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	14.8 11.00	17.2 16.2	17.6 14.4
Calculation of Points multiply by 4 ...	...	...	...	...	1.20 .94	1.66 1.27	1.64 1.31
Points { For time since Calving	...	...	...	...	4.80 3.76	6.64 5.08	6.56 5.24
For weight of Milk (lbs.)	...	...	...	...	5.4	1.4	2.1
For weight of Fat (lbs. × 20)	...	...	...	...	22.8	32.0	32.4
For weight of Solids other than Fat	...	...	...	...	25.8	33.4	32.0
(lbs. × 4) ...	...	...	...	...	8.6	11.7	11.8
Total ...	...	...	...	...	62.6	78.5	78.3
Deductions	...	...	...	...	—	—	—
Points gained...	...	...	...	...	62.6	78.5	78.3
Remarks and Awards	...	...	...	...	2nd Prize.		3rd Prize.

CLASS 13.—GUERNSEY HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919).

Number ... Name ...	...	...	...	...	227 Myrtle Lady and of Newington	228 W. Alfred Malabar Street	229 Lambert's, Rhoda R.	231 Bourdon Dairy Ltd
Born ...	...	...	...	...	June 21, 1920,	May 29, 1920,	June 7, 1920,	Oct. 4, 1920,
Number of Calves ...	...	...	...	...	...	...	...	...
Last Calved ...	...	...	...	...	Sept. 1,	...	Sept. 8,	Sept. 24,
Days since Calving ...	...	...	...	...	45	...	38	22
Live weight, in lbs.,	...	...	...	...	782	986	772	872
Weight of Milk, 1st day	...	...	...	...	Morn	Morn	Even	Morn
Weight of Milk, 2nd day	...	...	...	...	16.6	13.4	16.4	13.1
Total ...	...	...	...	...	17.3	13.7	15.8	14.5
Average ...	...	...	...	...	33.9	27.1	32.2	27.6
Percentage	...	...	...	...	16.9	13.5	16.1	13.8
Composition of	...	...	...	...	5.55	4.72	3.25	4.40
the Milk.	...	...	...	...	9.49	9.48	9.19	9.26
Actual weight of Fat, in lbs.,	...	...	...	...	15.04	14.20	12.44	13.66
Calculation of Points multiply by 20...	...	...	...	...	18.8	16.9	10.50	12.10
Actual weight of Solids other than Fat, in lbs.,	...	...	...	...	1.00	1.33	1.48	1.24
Calculation of Points multiply by 4 ...	...	...	...	...	6.40	5.32	5.92	4.96
Points { For time since Calving For weight of Milk (lbs.) For weight of Fat (lbs. × 20) For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	...	5	64	525	605
	...	...	...	...	30.9	24.8	30.1	25.8
	...	...	...	...	35.7	23.4	26.8	25.3
	...	...	...	...	11.7	9.4	10.9	9.4
Total ...	...	...	...	...	78.8	57.6	67.8	60.5
Deductions ...	...	...	...	...	78.8	57.6	67.8	60.5
Points gained...	...	...	...	...	...	...	...	...
Remarks and Awards ...	...	...	...	...	1st Prize.	Reserve.	2nd Prize.	3rd Prize.

CLASS 13.—GUERNSEY HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919)—Continued.

Number ...	...	...	...	...	...	233
Name ...	...	...	...	...	...	Lily's Blonde.
Born ...	...	...	...	...	...	Feb. 1, 1920.
Number of Calves	...	...	...	...	...	—
Last Calved	...	...	...	...	...	Oct. 1.
Days since Calving	...	...	...	...	...	15
Live weight, in lbs.	...	...	...	...	...	701
Weight of Milk, 1st day	...	...	...	...	...	Morn Even
Weight of Milk, 2nd day	...	...	...	...	...	11·6 10·1
Total	...	...	...	...	...	11·6 10·0
Average	...	...	...	...	...	23·2 20·1
Percentage of Fat ...	...	...	...	...	...	11·6 10·0
Composition of Solids other than Fat	...	...	...	...	...	3·29 4·29
the Milk. { Total Solids	...	...	...	...	...	9·87 10·25
Actual weight of Fat, in lbs. ...	...	...	...	...	...	13·16 14·54
Calculation of Points multiply by 20...	...	...	...	...	...	·38 ·43
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	7·6 8·6
Calculation of Points multiply by 4 ...	...	...	...	...	...	1·14 1·02
Points { For time since Calving	...	...	...	...	...	4·56 4·08
{ For weight of Milk (lbs.)	...	...	...	...	...	—
{ For weight of Fat (lbs. × 20)	...	...	...	...	...	21·6
{ For weight of Solids other than Fat	...	...	...	...	...	16·2
(lbs. × 4) ...	...	...	...	...	...	8·6
Total	...	...	...	...	...	46·4
Deductions	...	...	...	...	...	—
Points gained...	...	...	...	...	...	46·4
Remarks and Awards ...	...	...	...	...	...

CLASS 14.—RED POLL COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1917).

Number ...	...	...	...	238	240	241	242
Name ...	...	...	...	Melton Mavis	Knepp Cowslip 3rd.	Miss Sybil 13th.	Knepp Primrose 4th.
Born ...	...	...	...	Feb. 6, 1916.	Jan. 17, 1917.	Sept. 30, 1911.	Dec. 20, 1916.
Number of Calves ...	...	...	...	4	—	4	3
Last Calved ...	...	...	...	Sept. 8.	Aug. 30.	Aug. 30.	Sept. 26.
Days since Calving ...	...	...	...	38	47	47	20
Live weight, in lbs. ...	...	...	...	1,180	1,252	1,392	1,302
Weight of Milk, 1st day ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	...	...	21-1 20-3	22-8 19-0	14-1 10-0	28-0 25-9
Total ...	...	...	...	21-3 19-0	23-5 19-1	13-8 10-3	26-5 24-0
Average ...	...	...	...	42-4 39-3	46-3 38-1	27-9 20-3	54-5 49-9
Percentage { Fat ...	...	...	...	21-2 19-6	23-1 19-0	13-9 10-1	27-2 24-9
Composition of { Solids other than Fat	...	...	...	2-45 4-75	3-02 3-91	3-02 3-08	3-93 5-14
the Milk. { Total Solids	...	...	...	9-03 8-79	8-76 8-59	7-78 8-18	9-93 9-22
Actual weight of Fat, in lbs. ...	...	...	...	11-48 13-54	11-78 12-50	10-80 11-26	13-86 14-36
Calculation of Points multiply by 20 ...	...	...	...	.52 .93	.70 .74	.42 .31	1-07 1-28
Actual weight of Solids other than Fat, in lbs.	...	...	...	10-4 18-6	14-0 14-8	8-4 6-2	21-4 25-6
Calculation of Points multiply by 4 ...	...	...	...	1-92 1-72	2-02 1-63	1-08 .825	2-70 2-30
Points { For time since Calving ...	...	...	...	7-68 6-88	8-08 6-52	4-32 3-3	10-80 9-20
{ For weight of Milk (lbs.) ...	...	...	...	—	.7	.7	—
{ For weight of Fat (lbs. × 20) ...	...	...	...	40-8	42-1	24-0	52-1
{ For weight of Solids other than Fat	...	...	...	29-0	28-8	14-6	47-0
(lbs. × 4) ...	...	...	...	14-5	14-6	7-6	20-0
Total ...	...	...	...	84-3	86-2	46-9	119-1
Deductions ...	...	...	...	10-0	—	20-0	—
Points gained ...	...	...	...	74-3	86-2	26-9	119-1
Remarks and Awards ...	...	...	...	...	...	...	2nd Prize, Red Poll Cattle Society's Prize

CLASS 14.—RED POLL COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1917)—Continued.

Number ...	243	244	245	246
Name ...	Tuesoad Jennifer.	Framingham Red Russet	Tendring Floss 20th.	Harefield Fillpail 1st.
Born ...	July 15, 1917.	Nov. 24, 1915.	Oct. 1, 1916.	June 16, 1917.
Number of Calves ...	2	—	—	2
Last Calved ...	Sept. 25.	Sept. 12.	April 6.	Sept. 12.
Days since Calving ...	21	34	193	34
Live weight, in lbs. ...	1,213	1,044	1,342	1,079
Weight of Milk, 1st day ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	23.4 20.6	36.6 27.4	13.0 13.3	27.9 27.5
Total ...	22.4 23.2	37.2 28.0	13.5 12.0	25.5 21.0
Average ...	45.8 43.8	73.8 55.4	26.5 25.3	53.4 48.5
Percentage { Fat ...	22.9 21.9	36.9 27.7	13.2 12.6	26.7 24.2
Composition { Solids other than Fat	3.41 3.68	2.36 2.38	3.83 4.55	2.67 4.92
the Milk. { Total Solids ...	9.43 9.18	8.74 9.14	9.03 8.95	9.05 8.78
Actual weight of Fat, in lbs. ...	12.84 12.86	11.10 11.52	12.86 13.50	11.72 13.70
Calculation of Points multiply by 20 ...	.78 .805	.87 .66	.505 .575	.71 1.19
Actual weight of Solids other than Fat, in lbs.	15.6 16.1	17.4 13.2	10.10 11.50	14.2 23.8
Calculation of Points multiply by 4 ...	2.16 2.00	3.22 2.53	1.19 1.13	2.42 2.12
Points { For time since Calving ...	8.64 8.00	12.88 10.12	4.76 4.52	9.68 8.48
For weight of Milk (lbs.) ...	—	—	12.0	—
For weight of Fat (lbs. × 20) ...	44.8	64.6	25.8	50.9
For weight of Solids other than Fat (lbs. × 4) ...	31.7	30.6	21.6	38.0
Total ...	16.6	23.0	9.3	18.2
Deductions ...	93.1	118.2	68.7	107.1
Points gained ...	—	20.0	—	10.0
Remarks and Awards ...	93.1	98.2	68.7	97.1

CLASS 14.—RED POLL COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1917)—Continued

Number ...	...	...	...	...	...	256	257
Name ...	...	...	...	...	...	Greenhall Wild (mil)	Sudbourne Norah.
Born ...	...	...	...	...	...	Oct. 4, 1916.	Dec. 9, 1913.
Number of Calves	...	...	...	...	...	4	—
Last Calved	...	...	...	...	...	June 30.	Aug. 29.
Days since Calving	...	...	...	...	...	108	48
Live weight, in lbs.	...	...	...	...	...	924	1,038
Weight of Milk, 1st day	...	...	...	...	...	Morn	Morn
Weight of Milk, 2nd day	...	...	...	...	...	Even	Even
Total	...	...	...	...	...	27.7	19.7
Average	...	...	...	...	...	25.1	16.9
Percentage of Fat ...	...	...	...	...	...	29.7	22.6
Composition of Solids other than Fat	...	...	...	...	...	22.3	19.4
the Milk. { Total Solids	...	...	...	...	...	57.4	42.3
Actual weight of Fat, in lbs. ...	...	...	...	...	...	47.4	36.3
Calculation of Points multiply by 20...	...	...	...	...	...	28.7	21.1
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	23.7	18.1
Calculation of Points multiply by 4 ...	...	...	...	...	...	3.63	3.52
Points { For time since Calving	...	...	...	...	...	4.10	3.96
For weight of Milk (lbs.)	...	...	...	...	...	9.01	9.40
For weight of Fat (lbs. × 20)	...	...	...	...	...	9.04	9.24
For weight of Solids other than Fat (lbs. × 4)	...	...	...	...	...	12.64	12.92
Total ...	...	...	...	...	...	13.14	13.20
Deductions ...	...	...	...	...	...	1.04	.97
Points gained...	...	...	...	...	...	20.8	14.9
Remarks and Awards ...	...	...	...	...	...	19.4	14.30
	...	...	...	...	...	2.60	1.98
	...	...	...	...	...	10.40	7.92
	...	...	...	...	...	8.56	6.68
	...	...	...	...	...	6.8	.8
	...	...	...	...	...	52.4	39.2
	...	...	...	...	...	40.2	29.2
	...	...	...	...	...	18.9	14.6
	...	...	...	...	...	118.3	83.8
	—	—
	...	...	...	...	...	118.3	83.8
	...	...	...	...	...	3rd Prize.	

CLASS 15.—RED POLL COWS (BORN AFTER 1ST AUGUST, 1917, AND PREVIOUS TO 1ST AUGUST, 1919).

Number ...	260	261	262	263
Name ...	Melton Minaret.	Knepp Euphemia 2nd.	Grossenball Margate.	Harefield Dawn
Born ...	Nov. 28, 1918.	Aug. 14, 1918.	Oct. 24, 1917.	Nov. 8, 1917.
Number of Calves ...	2	2	3	3
Last Calved ...	Aug. 26,	Aug. 28,	Aug. 8,	Aug. 28,
Days since Calving ...	51	49	69	49
Live weight, in lbs. ...	940	1,239	1,156	870
Weight of Milk, 1st day	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	19.4 16.4	22.1 19.3	22.2 20.6	25.5 20.2
Total	19.4 17.2	21.5 17.2	25.1 18.0	25.6 19.5
Average ...	38.8 33.6	43.6 36.5	47.3 38.6	51.1 39.7
Percentage of Fat, in lbs. ...	19.4 16.8	21.8 18.2	23.6 19.3	25.5 19.8
Composition of Solids other than Fat the Milk.	2.02 3.49	3.01 3.61	4.28 3.88	3.13 3.39
Total Solids	9.22 9.03	9.51 9.29	9.40 9.44	8.91 8.81
Actual weight of Fat, in lbs. ...	11.84 12.52	12.52 12.90	13.68 13.32	12.04 12.20
Calculation of Points multiply by 20...	51 .59	.66 .66	1.02 .75	.80 .67
Actual weight of Solids other than Fat, in lbs.	10.2 11.8	13.2 13.2	20.4 15.0	16.0 13.4
Calculation of Points multiply by 4 ...	1.80 1.52	2.08 1.69	2.22 1.82	2.28 1.75
Points	7.20 6.08	8.32 6.76	8.88 7.28	9.12 7.00
For time since Calving ...	1.1	.9	2.9	.9
For weight of Milk (lbs.) ...	36.2	40.0	42.9	45.3
For weight of Fat (lbs. × 20) ...	22.0	26.4	35.4	29.4
For weight of Solids other than Fat (lbs. × 4) ...	13.3	15.0	16.2	16.1
Total ...	72.6	82.4	97.4	91.7
Deductions ...	10.0	—	—	—
Points gained...	62.6	82.4	97.4	91.7
Remarks and Awards ...			2nd Prize.	3rd Prize.

CLASS 15.—RED POLL COWS (BORN AFTER 1ST AUGUST, 1917, AND PREVIOUS TO 1ST AUGUST, 1919)—Continued.

Number	266 Shotford Star Duchess 121st.	267 Ashmoor Patricia.	269 Basildon Fairy.	270 Basildon Rosalind.
Name	Feb. 26, 1918. 2	Aug. 7, 1918. 3	Dec. 25, 1918.	Feb. 20, 1918.
Born	July 17. 91	July 4. 104	Aug. 17. 60	Aug. 29. 48
Number of Calves	1,332	1,105	1,122	980
Last Calved	Morn	Morn	Morn	Morn
Days since Calving	Even	Even	Even	Even
Live weight, in lbs.	22-4	19-1	18-3	23-4
Weight of Milk, 1st day	18-3	17-4	16-4	19-5
Weight of Milk, 2nd day	23-0	21-3	20-7	26-6
Total	37-2	35-4	30-0	50-0
Average	22-7	20-2	19-5	25-0
Percentage { Fat	18-6	17-7	15-0	15-6
Composition of { Solids other than Fat	2-80	3-06	2-39	2-54
the Milk. { Total Solids	8-99	9-40	8-61	8-52
Actual weight of Fat, in lbs.	12-06	12-50	11-00	11-06
Calculation of Points multiply by 20	-635	-65	-465	-64
Actual weight of Solids other than Fat, in lbs.	12-70	13-00	9-30	12-8
Calculation of Points multiply by 4	2-10	1-67	1-68	2-13
Points { For time since Calving	8-40	6-68	6-72	8-52
{ For weight of Milk (lbs.)	5-1	6-4	2-0	-8
{ For weight of Fat (lbs. × 20)	41-3	37-9	34-5	40-6
{ For weight of Solids other than Fat (lbs. × 4)	25-7	29-0	16-1	18-8
Total	15-1	13-9	11-9	13-7
Deductions	87-2	87-2	64-5	73-9
Points gained	10-0	—	20-0	30-0
Remarks and Awards	77-2	87-2	44-5	43-9
...	Reserve.	Reserve.	Reserve.	Reserve.

CLASS 16.—RED POLL HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919).

Number ... Name ...	...	...	...	...	276 Brown Bery.	281 Framlingham Chie.		283 Hutton Ruth.		285 Woolpit Bess
						Nov. 20, 1919.		Aug. 14, 1919.		
Born ...	...	...	...	...	Nov. 14, 1919.	Morn	Even	Morn	Even	May 16, 1920.
Number of Calves ...	...	...	...	...	July 28.	18-3	18-8	16-2	13-4	—
Last Calved ...	...	...	...	...	80	16-7	16-1	17-7	16-1	Aug. 6.
Days since Calving ...	...	...	...	...	1,126	35-0	34-9	33-9	29-5	71
Live weight, in lbs. ...	...	...	...	...		17-5	17-4	16-9	14-7	1,071
Weight of Milk, 1st day ...	...	...	...	...		2-11	2-71	3-20	5-53	Morn
Weight of Milk, 2nd day ...	...	...	...	...		9-63	9-41	9-80	9-19	Even
Total ...	...	...	...	...		11-74	12-12	13-00	14-72	14-5
Average ...	...	...	...	...		3-37	4-47	5-54	8-1	10-3
Percentage { Fat ...	...	...	...	...		7-4	9-4	10-8	16-2	25-0
Composition of { Solids other than Fat	...	...	...	...		1-69	1-64	1-66	1-35	4-86
the Milk. { Total Solids	...	...	...	...		6-76	6-56	6-64	5-40	9-06
Actual weight of Fat, in lbs. ...	...	...	...	...						13-04
Calculation of Points multiply by 20 ...	...	...	...	...						13-92
Actual weight of Solids other than Fat, in lbs.	...	...	...	...						405
Calculation of Points multiply by 4 ...	...	...	...	...						525
Points { For time since Calving For weight of Milk (lbs.) For weight of Fat (lbs. × 20) For weight of Solids other than Fat (lbs. × 4)	...	...	...	...						8-10
	...	...	...	...						10-50
	...	...	...	...						1-22
	...	...	...	...						488
Total ...	...	...	...	...						3-1
Deductions ...	...	...	...	...						23-3
Points gained...	...	...	...	...						18-6
Remarks and Awards ...	...	...	...	...						8-8
	...	...	...	...						53-8
						—
	...	...	...	...						53-8
	...	...	...	...						3rd Prize.

CLASS 16.—RED POLL HEIFERS (BORN ON OR AFTER 1st AUGUST, 1919)—Continued.

Number	286	287	290	293
Name	Framlingham Rosegal	Itchenworth Uigona V Id	Aslmoor Flop.	Hutton Dalila 1st.
Born	April 10, 1920.	Jan. 12, 1920.	April 25, 1920.	Sept. 18, 1919.
Number of Calves	1	—	1	—
Last Calved	Aug. 29.	Sept. 23.	July 31.	Aug. 13.
Days since Calving	48	23	77	64
Live weight, in lbs.	990	1,087	918	1,106
Weight of Milk, 1st day	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	16.4 12.1	13.8 14.3	16.1 12.2	21.2 16.2
Total	12.5 13.0	17.2 14.3	16.4 13.6	19.8 15.7
Average	28.9 25.1	31.0 28.6	32.5 25.8	41.0 31.9
Percentage { Fat	14.4 12.5	15.5 14.3	16.2 12.9	20.5 15.9
Composition of { Solids other than Fat	4.90 3.43	5.02 5.71	3.07 4.31	2.70 3.47
the Milk. { Total Solids	9.22 8.53	9.22 8.95	8.83 8.71	9.28 9.31
Actual weight of Fat, in lbs.	14.12 11.96	14.24 14.66	11.90 13.02	11.98 12.78
Calculation of Points multiply by 20...705 .43	.78 .835	.50 .555	.555 .55
Actual weight of Solids other than Fat, in lbs.	14.10 8.6	15.6 16.70	10.00 11.10	11.10 11.00
Calculation of Points multiply by 4	1.33 1.07	1.43 1.28	1.43 1.12	1.90 1.48
Points { For time since Calving	5.32 4.28	5.72 5.12	5.72 4.48	7.60 5.92
{ For weight of Milk (lbs.)8	—	3.7	2.4
{ For weight of Fat (lbs. × 20)	26.9	29.8	29.1	36.4
{ For weight of Solids other than Fat	22.7	32.3	21.1	22.1
(lbs. × 4)	9.6	10.8	10.2	13.5
Total	60.0	72.9	64.1	74.4
Deductions	—	—	—	10.0
Points gained...	60.0	72.9	64.1	64.4
Remarks and Awards	Reserve.	Reserve.	Reserve.	Reserve.

CLASS 16.—RED POLL HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919)—Continued.

Number ... Name ...	...	...	...	...	294		296	
					Hutton Dablia 2nd.	Hutton Retreat.		
Born ...	...	...	...	...	Sept. 24, 1919.	Oct. 10, 1919.		
Number of Calves ...	...	...	...	...	Sept. 20.	Sept. 4.		
Last Calved ...	...	...	...	...	26	42		
Days since Calving ...	...	...	...	...	1,126	1,176		
Live weight, in lbs. ...	...	...	...	...	Morn	Even	Morn	Even
Weight of Milk, 1st day ...	...	...	...	...	19-1	18-8	18-5	14-6
Weight of Milk, 2nd day ...	...	...	...	...	20-3	19-0	17-3	14-7
Total ...	...	...	...	...	39-4	37-8	35-8	29-3
Average ...	...	...	...	...	19-7	18-9	17-9	14-6
Percentage of Fat ...	...	...	...	...	3-06	3-97	4-20	5-14
Composition of Solids other than Fat the Milk. {	...	...	...	...	9-60	9-41	9-58	9-64
Total Solids ...	...	...	...	...	12-66	13-38	13-78	14-78
Actual weight of Fat, in lbs. ...	...	...	...	...	.60	.75	.755	.75
Calculation of Points multiply by 20... {	...	...	...	...	12-00	15-00	15-10	15-00
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	...	1-90	1-78	1-72	1-41
Calculation of Points multiply by 4 ... {	...	...	...	...	7-60	7-12	6-88	5-64
For time since Calving ...	...	...	...	...	—	—	.2	—
For weight of Milk (lbs.) ...	...	...	...	...	38-6	—	32-5	—
For weight of Fat (lbs. × 20) ...	...	...	...	...	27-0	—	30-1	—
For weight of Solids other than Fat (lbs. × 4) ... {	...	...	...	...	14-7	—	12-5	—
Total ...	...	...	...	...	80-3	—	75-3	—
Deductions ...	...	...	...	...	—	—	—	—
Points gained... {	...	...	...	...	80-3	—	75-3	—
Remarks and Awards ...	...	...	...	...	1st Prize.	2nd Prize.		

CLASS 17.—DEVON COWS.

Number ...	...	...	...	297	298	299	300
Name ...	...	...	...	Stratton Tottle 5th.	Barrowfield Rose.	Charn	Wynford Molly.
Born ...	...	...	...	Feb. 2, 1911.	Jan. —, 1915.	1918.	Jan. —, 1913.
Number of Calves ...	...	...	...	Sept. 7.	Oct. 2.	Sept. 6.	Sept. 4.
Last Calved ...	...	...	...	39	14	40	42
Days since Calving ...	...	...	...	1,374	1,218	978	1,243
Live weight, in lbs. ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day ...	...	...	...	25.5 20.6	19.1 16.1	24.6 21.6	31.3 26.4
Weight of Milk, 2nd day ...	...	...	...	26.7 20.9	19.9 16.5	26.2 22.2	34.1 28.3
Total ...	...	...	...	52.2 41.5	39.0 32.6	50.8 43.8	65.4 54.7
Average ...	...	...	...	26.1 20.7	19.5 16.3	25.4 21.9	32.7 27.3
Percentage of Fat ...	...	...	...	3.75 4.84	4.54 4.76	3.06 3.92	3.14 4.44
Composition of Solids other than Fat ...	...	...	...	9.45 9.44	9.74 9.64	9.60 9.44	8.84 8.60
the Milk { Total Solids ...	...	...	...	13.20 14.28	14.28 14.40	12.66 13.36	11.98 13.04
Actual weight of Fat, in lbs. ...	...	...	...	.98 1.00	.90 .78	.78 .86	1.03 1.22
Calculation of Points multiply by 20 ...	...	...	...	19.60 20.00	18.00 15.60	15.60 17.20	20.60 24.40
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	2.46 1.97	1.90 1.57	2.43 2.07	2.90 2.86
Calculation of Points multiply by 4 ...	...	...	...	9.84 7.88	7.60 6.28	9.72 8.28	11.60 9.44
Points { For time since Calving ...	...	...	...	46.8	35.8	47.3	60.0
{ For weight of Milk (lbs.) ...	...	...	...	39.6	33.6	32.8	45.0
{ For weight of Fat (lbs. × 20) ...	...	...	...	17.7	13.9	18.0	21.0
{ For weight of Solids other than Fat ...	...	...	...	104.1	83.3	98.1	126.2
{ (lbs. × 4) ...	...	...	...	104.1	83.3	98.1	126.2
Total ...	...	...	...	104.1	83.3	98.1	126.2
Deductions ...	...	...	...	...	...	...	...
Points gained ...	...	...	...	...	...	...	...
Remarks and Awards ...	...	...	...	Reserve.	...	Highly Commended.	1st Prize.

CLASS 17.—DEVON COWS—Continued.

Number ... Name ...	...	...	...	...	301 Wynford Pll.	302 Wynford Laburnam.	303 Lovely 4th.
Born ...	...	...	...	...	July 23, 1913. 7	Dec. 23, 1915. 5	May 5, 1918.
Number of Calves ...	...	...	...	...	May 14. 155	Sept. 25. 21	Oct. 1. 15
Last Calved ...	...	...	...	...	1,332	1,286	1,172
Days since Calving ...	...	...	...	...	Morn Even	Morn Even	Morn Even
Live weight, in lbs. ...	...	...	...	...	14.4 11.2	26.1 21.3	24.1 20.3
Weight of Milk, 1st day ...	...	...	...	...	13.7 9.4	28.1 22.1	24.6 23.3
Weight of Milk, 2nd day ...	...	...	...	...	28.1 20.6	54.2 43.4	48.7 43.6
Total ...	...	...	...	...	14.0 10.3	27.1 21.7	24.3 21.8
Average ...	...	...	...	...	4.34 4.68	4.09 5.00	3.17 5.17
Percentage { Fat ...	...	...	...	...	9.16 9.32	9.59 9.72	8.97 9.69
Composition of { Solids other than Fat	...	...	...	...	13.50 14.00	13.68 14.72	11.84 14.86
the Milk. { Total Solids	...	...	...	...	.61 .48	1.10 1.08	.77 1.13
Actual weight of Fat, in lbs. ...	...	...	...	...	12.20 9.60	22.00 21.60	15.40 22.60
Calculation of Points multiply by 20...	...	...	...	...	1.28 .96	2.59 2.10	2.12 2.12
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	5.12 3.84	10.36 8.40	8.48 8.48
Calculation of Points multiply by 4 ...	...	...	...	...	11.5	—	—
{ For time since Calving	...	...	...	...	24.3	48.8	46.1
{ For weight of Milk (lbs.)	...	...	...	...	21.8	43.6	38.0
{ For weight of Fat (lbs. × 20)	...	...	...	...	8.9	18.7	16.9
{ For weight of Solids other than Fat	...	...	...	...	66.5	111.1	101.0
{ (lbs. × 4) ...	...	...	...	...	—	—	—
Total ...	...	...	...	...	66.5	111.1	101.0
Deductions ...	...	...	...	...	—	—	—
Points gained...	...	...	...	...	66.5	111.1	101.0
Remarks and Awards ...	...	...	...	...	2nd Prize.		Highly Commended.

CLASS 18.—SOUTH DEVON COWS.

Number ...	...	304	306	307	308
Name ...	...	Fentongolinn Buttercup	Fentongolinn Stella.	Netton Lily.	Phukle.
Born ...	...	Mar. 31, 1917.	April 28, 1917.	Mar. 1, 1914.	Feb. 10, 1917.
Number of Calves ...	...	...	...	5	3
Last Calved ...	...	July 22.	July 19.	Sept. 18.	Sept. 26.
Days since Calving ...	...	86	89	28	20
Live weight, in lbs. ...	...	...	...	1,639	1,352
Weight of Milk, 1st day ...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	12-6 12-1	18-0 17-0	31-4 28-7	23-8 20-4
Total ...	...	16-8 13-8	20-4 17-2	32-7 27-4	25-4 17-9
Average ...	...	29-4 25-9	38-4 34-2	64-1 56-1	49-2 38-3
Percentage { Fat ...	...	14-7 12-9	19-2 17-1	32-0 28-0	24-6 19-1
Composition of { Solids other than Fat	...	4-73 5-63	4-19 4-71	4-90 4-84	3-77 3-57
the Milk, { Total Solids	...	9-49 9-51	9-65 9-97	9-80 9-98	9-27 9-43
Actual weight of Fat, in lbs. ...	...	14-22 15-14	13-84 14-68	14-70 14-82	13-04 13-00
Calculation of Points multiply by 20...	...	.70 .73	.80 .80	1-57 1-36	.93 .68
Actual weight of Solids other than Fat, in lbs.	...	14-00 14-60	16-00 16-00	31-40 27-20	18-60 13-60
Calculation of Points multiply by 4 ...	...	1-40 1-22	1-85 1-70	3-15 2-80	2-28 1-81
Points { For time since Calving ...	...	5-60 4-88	7-40 6-80	12-60 11-20	9-12 7-24
For weight of Milk (lbs.) ...	...	4-6	4-9	...	...
For weight of Fat (lbs. × 20) ...	...	27-6	36-3	60-0	43-7
For weight of Solids other than Fat (lbs. × 4) ...	...	28-6	32-0	58-6	32-2
Total ...	...	10-5	14-2	23-8	16-3
Deductions ...	...	71-3	87-4	142-4	92-2
Points gained...	...	71-3	87-4	142-4	92-2
Remarks and Awards ...	...	...	...	1st Prize Reserve for Spencer Challenge Cup South Devon Herd Book Society's Prize	...

CLASS 18.—SOUTH DEVON COWS—Continued.

Number ...	...	...	...	...	310
Name ...	...	...	...	...	Milkaway.
Born ...	...	...	...	...	Dec. 30, 1917.
Number of Calves	...	...	...	...	2
Last Calved	...	...	...	...	Aug. 24.
Days since Calving	...	...	...	...	53
Live weight, in lbs.	...	...	...	...	1,562
Weight of Milk, 1st day	...	...	...	...	Morn
Weight of Milk, 2nd day	...	...	...	...	Even
	...	...	...	...	22.3
	...	...	...	...	22.4
	...	...	...	...	26.3
	...	...	...	...	22.8
Total ...	...	...	...	...	48.6
Average ...	...	...	...	...	45.2
Percentage	...	...	...	...	24.3
Composition of	...	...	...	...	22.6
the Milk.	...	...	...	...	4.33
	...	...	...	...	4.81
	...	...	...	...	9.41
	...	...	...	...	9.43
Actual weight of Fat, in lbs.	...	...	...	...	13.74
Calculation of Points multiply by 20...	...	...	...	...	14.24
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	1.05
Calculation of Points multiply by 4 ...	...	...	...	...	1.09
	...	...	...	...	21.00
	...	...	...	...	21.80
	...	...	...	...	2.29
	...	...	...	...	2.14
	...	...	...	...	9.16
	...	...	...	...	8.56
Points	...	...	...	...	1.3
	...	...	...	...	46.9
	...	...	...	...	42.8
	...	...	...	...	17.7
	...	...	...	...	108.7
	—
	...	...	...	...	108.7
Remarks and Awards ...	...	...	...	...	2nd Prize.

CLASS 19—AYRSHIRE COWS—Continued.

Number ...	...	322	323	324	325
Name ...	...	Kate.	Molly.	Byreholm Viper.	Alkenbar Mabel 2nd.
Born ...	...	1916.	1916.	Jan. 3, 1918.	Sept. 7, 1917.
Number of Calves ...	...	...	...	7	2
Last Calved ...	...	Oct. 1.	Sept. 12.	Aug. 28.	Oct. 2.
Days since Calving ...	...	15	34	49	14
Live weight, in lbs. ...	...	1,164	1,136	1,191	994
Weight of Milk, 1st day ...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	26.4 21.1	26.8 25.0	31.3 26.9	27.5 21.9
Total ...	...	51.4 42.6	53.5 52.7	60.4 55.2	56.3 44.7
Average ...	...	25.7 21.3	26.3	30.2 27.6	28.1 22.3
Percentage of Fat ...	...	4.77 5.17	3.33 3.64	2.50 4.11	4.86 4.91
Composition of Solids other than Fat ...	...	9.11 8.95	8.73 8.54	8.74 8.51	9.96 10.01
the Milk. { Total Solids ...	...	13.88 14.12	12.06 12.18	11.24 12.62	14.82 14.92
Actual weight of Fat, in lbs. ...	...	1.23 1.10	.98 .96	.76 1.14	1.37 1.10
Calculation of Points multiply by 20... {	...	24.60 22.00	19.60 19.20	15.20 22.80	27.40 22.00
Actual weight of Solids other than Fat, in lbs. {	...	2.34 1.90	2.58 2.25	2.64 2.35	2.80 2.25
Calculation of Points multiply by 4 ... {	...	9.36 7.60	10.32 9.00	10.56 9.40	11.20 9.00
For time since Calving ...	...	...	...	.9	...
For weight of Milk (lbs.) ...	...	47.0	55.9	57.8	50.4
For weight of Fat (lbs. × 20) ...	...	46.6	38.8	38.0	49.4
For weight of Solids other than Fat (lbs. × 4) ...	...	16.9	19.3	19.9	20.2
Total ...	...	110.5	114.0	116.6	120.0
Deductions ...	...	...	...	10.0	...
Points gained... {	...	110.5	114.0	106.6	120.0
Remarks and Awards ...	...	Reserve.	2nd Prize.	Highly Commended.	1st Prize. Rowallan Cup.

CLASS 19.—AYRSHIRE COWS.—Continued.

Number ...	...	...	...	...	326
Name ...	...	...	...	...	Brownie.
Born ...	...	...	...	...	1915.
Number of Calves	...	...	...	...	—
Last Calved ...	...	...	...	...	Sept. 5.
Days since Calving	...	...	...	...	41
Live weight, in lbs.	...	...	...	...	1,100
Weight of Milk, 1st day	...	...	...	...	Morn 28.3
Weight of Milk, 2nd day	...	...	...	...	Even 23.2
Total ...	...	...	...	...	27.2 25.6
Average ...	...	...	...	...	55.5 48.8
Percentage { Fat ...	...	...	...	...	27.7 24.4
Composition of { Solids other than Fat	...	...	...	...	3.00 3.35
the Milk. { Total Solids	...	...	...	...	9.34 9.03
Actual weight of Fat, in lbs.	...	...	...	...	12.34 12.38
Calculation of Points multiply by 20...	...	...	...	...	.83 .82
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	16.60 16.40
Calculation of Points multiply by 4 ...	...	...	...	...	2.57 2.21
Points { For time since Calving	...	...	...	...	10.28 8.84
{ For weight of Milk (lbs.)	...	...	...	...	—
{ For weight of Fat (lbs. × 20)	...	...	...	...	52.1
{ For weight of Solids other than Fat	...	...	...	...	33.0
(lbs. × 4)	...	...	...	...	19.1
Total ...	...	...	...	...	104.2
Deductions ...	...	...	...	...	—
Points gained...	...	...	...	...	104.2
Remarks and Awards ...	...	...	...	...	Highly Commended.

CLASS 20.—AYRSHIRE HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919).

Number ...	...	...	...	328	329	330	331
Name ...	...	...	...	Dunlop Barmaid.	Buntonhill Prince 2nd	Barr Dairymaid.	Moorfield Dolly.
Born ...	...	...	...	Nov. 30, 1919.	Oct. 26, 1919.	Jan. 25, 1920.	Nov. 18, 1919.
Number of Calves ...	...	...	...	Sept. 10.	Oct. 2.	Sept. 19.	Sept. 17.
Last Calved ...	...	...	...	36	14	27	20
Days since Calving ...	...	...	...	1,004	973	1,138	961
Live weight, in lbs.	...	...	...	Morn	Even	Morn	Even
Weight of Milk, 1st day	...	...	...	19-3	16-9	17-0	12-7
Weight of Milk, 2nd day	...	...	...	20-9	17-2	16-1	16-5
Total	...	...	...	40-2	34-1	33-1	32-6
Average	...	...	...	20-1	17-0	16-5	15-9
Percentage of Fat ...	...	...	...	2-88	3-43	3-64	4-31
Composition of Solids other than Fat	...	...	...	9-46	9-55	9-24	9-61
Total Solids	...	...	...	12-34	12-98	12-88	13-92
Actual weight of Fat, in lbs. ...	...	...	...	-58	-58	-60	-70
Calculation of Points multiply by 20...	...	...	...	11-60	11-60	12-00	14-00
Actual weight of Solids other than Fat, in lbs.	...	...	...	1-88	1-63	1-53	1-50
Calculation of Points multiply by 4 ...	...	...	...	7-52	6-52	6-12	6-00
Points	...	...	...	37-1	42-5	29-3	32-2
For time since Calving	...	...	...	23-2	37-4	23-6	28-6
For weight of Milk (lbs.)	...	...	...	14-0	15-6	10-9	12-2
For weight of Fat (lbs. × 20)	...	...	...	74-3	95-5	63-8	73-0
For weight of Solids other than Fat (lbs. × 4)	...	...	...	10-0	—	—	—
Total	...	...	...	64-3	95-5	63-8	73-0
Deductions	...	...	...	—	—	—	—
Points gained...	...	...	...	—	—	—	—
Remarks and Awards ...	...	...	...	Highly Commended.	1st Prize, Reserve for Rowallan Cup.	Highly Commended.	Highly Commended.

CLASS 20—AYRSHIRE HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919)—Continued.

Number ...	...	...	...	...	332 Green Holm Proud Lady 7th	333 Green Holm Miss Robt 9th	334 Lasham k Dandy 3th	335 Netherlton Connie 3rd
Name ...	...	...	...	...	Oct. 15, 1919.	Oct. 20, 1919.	Dec. 18, 1919.	Nov. 26, 1919
Born ...	...	...	...	...	Aug. 2, 75	Aug. 4, 73	Oct. 2, 14	Sept. 20, 26
Number of Calves ...	...	...	...	...	890	922	900	981
Last Calved ...	...	...	...	...	...	...	...	...
Days since Calving ...	...	...	...	...	...	...	...	...
Live weight, in lbs. ...	...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day ...	...	...	...	...	20-3 17-2	22-3 16-9	20-5 16-5	19-6 17-2
Weight of Milk, 2nd day ...	...	...	...	...	20-6 15-5	19-8 16-3	21-1 17-0	18-9 17-0
Total ...	...	...	...	...	40-9 32-7	42-1 33-2	41-6 33-5	38-5 34-2
Average ...	...	...	...	...	20-4 16-3	21-0 16-6	20-8 16-7	19-2 17-1
Percentage { Fat ...	...	...	...	...	3-52 3-75	2-81 3-52	5-50 4-96	4-46 4-73
Composition of { Solids other than Fat	...	...	...	...	9-50 9-99	9-05 9-40	9-32 9-30	8-98 9-39
the Milk. { Total Solids	...	...	...	...	13-02 13-74	11-86 12-92	14-82 14-26	13-44 14-12
Actual weight of Fat, in lbs. ...	...	...	...	...	7-2 -61	5-9 -59	1-15 -83	8-5 -81
Calculation of Points multiply by 20...	...	...	...	...	14-40 12-20	11-80 11-80	23-00 16-60	17-0 16-20
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	1-94 1-63	1-90 1-56	1-94 1-55	1-70 1-58
Calculation of Points multiply by 4 ...	...	...	...	...	7-76 6-52	7-60 6-24	7-76 6-20	6-80 6-32
Points { For time since Calving	...	...	...	...	3-5	3-3	—	—
{ For weight of Milk (lbs.)	...	...	...	...	36-7	37-6	37-5	36-3
{ For weight of Fat (lbs. × 20)	...	...	...	...	26-6	23-6	39-6	33-2
{ For weight of Solids other than Fat	...	...	...	...	14-3	13-8	13-9	13-1
(lbs. × 4)	...	...	...	...	81-1	78-3	91-0	82-6
Total ...	...	...	...	...	—	10-0	—	—
Deductions ...	...	...	...	...	81-1	68-3	91-0	82-6
Points gained...	...	...	...	...	Highly Commended.	Highly Commended.	2nd Prize.	Reserve.
Remarks and Awards ...	...	...	...	...	Highly Commended.	Highly Commended.	2nd Prize.	Reserve.

CLASS 20.—AYRSHIRE HEIFERS (BORN ON OR AFTER 1st AUGUST, 1919) *Continued*

Number	336	337
Name	Nether-oughton Greenfield, Irb.	Greenan Ann.
Born	Jan. 26, 1920.	Mar. 1, 1920.
Number of Calves
Last Calved
Days since Calving
Live weight, in lbs.	Sept. 28, 18	Aug. 30, 47
...	1,137	986
Weight of Milk, 1st day	Morn	Even
Weight of Milk, 2nd day	20-6	20-9
Total	20-2	21-3
Average	40-8	42-2
...	20-4	21-1
Percentage { Fat	3-49	3-30
Composition of { Solids other than Fat	9-59	9-36
the Milk. { Total Solids	13-08	13-54
Actual weight of Fat, in lbs.71	.70
Calculation of Points multiply by 20...	14-20	14-80
Actual weight of Solids other than Fat, in lbs.	1-96	1-07
Calculation of Points multiply by 4	7-84	6-68
Points { For time since Calving7
{ For weight of Milk (lbs.)	38-1	39-2
{ For weight of Fat (lbs. \times 20)	29-0	29-6
{ For weight of Solids other than Fat	14-5	14-2
(lbs. \times 4)	81-6	83-7
Total
Deductions
Points gained...	81-6	83-7
Remarks and Awards	Highly Commended.	3rd Prize.

CLASS 22.—KERRY HEIFER (BORN ON OR AFTER 1ST AUGUST, 1919).

Number	350	353	357	358	
Name	Bella of Warren.	Bluecock of Warren.	Wadlands Alma.	Hattingley Haughty.	
Born	Jan. 19, 1920.	June 3, 1920.	Mar. 14, 1920.	May 30, 1920.	
Number of Calves	1	—	—	—	
Last Calved	Aug. 12.	Sept. 4.	Sept. 12.	Sept. 24.	
Days since Calving	65	42	34	22	
Live weight, in lbs.	718	720	797	908	
Weight of Milk, 1st day	Morn	Even	Morn	Even	
Weight of Milk, 2nd day	6.7	5.7	13.8	12.2	
Total	7.4	6.1	12.5	11.5	
Average	14.1	11.8	27.3	23.7	
Percentage { Fat	7.0	5.9	13.6	11.8	
Composition of { Solids other than Fat the Milk. { Total Solids	4.44	5.14	3.02	3.27	
						9.68	9.62	8.99	8.85	
Actual weight of Fat, in lbs.	14.12	14.76	12.01	12.12	
Calculation of Points multiply by 20...31	.30	.41	.39	
Actual weight of Solids other than Fat, in lbs.	6.20	6.00	8.20	7.80	
Calculation of Points multiply by 467	.57	1.22	1.06	
Points { For time since Calving For weight of Milk (lbs.) For weight of Fat (lbs. × 20) For weight of Solids other than Fat { (lbs. × 4)	2.68	2.28	4.88	4.24	
						2.5	—	—	—	
						12.9	—	25.4	—	
						12.2	—	16.0	—	
Total	4.9	—	9.1	10.7	
Deductions	32.5	—	50.5	63.4	
Points gained...	32.5	—	50.5	63.4	
Remarks and Awards					1st Prize.

CLASS 22.—KERRY HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919) — Continued

Number ...	...	...	...	...	...	360
Name ...	...	...	...	...	...	Battlegley Handtrap,
Born ...	...	...	...	...	...	..., 1920,
Number of Calves ...	...	...	...	...	...	Aug. 19,
Last Calved ...	...	...	...	...	...	58
Days since Calving ...	...	...	...	...	...	671
Live weight, in lbs.	...	...	...	...	...	Morn Even
Weight of Milk, 1st day	...	...	...	...	...	14.3 12.8
Weight of Milk, 2nd day	...	...	...	...	...	15.2 12.0
Total	...	...	...	...	...	29.6 24.8
Average	...	...	...	...	...	14.7 12.4
Percentage of Fat ...	...	...	...	...	...	2.81 3.28
Composition of Solids other than Fat	...	...	...	...	...	9.31 9.24
the Milk. { Total Solids	...	...	...	...	...	12.12 12.52
Actual weight of Fat, in lbs.	...	...	...	...	...	.41 .41
Calculation of Points multiply by 20...	...	...	...	...	...	8.20 8.20
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	...	1.37 1.15
Calculation of Points multiply by 4 ...	...	...	...	...	...	5.48 4.60
{ For time since Calving	...	...	...	...	...	1.8
{ For weight of Milk (lbs.)	...	...	...	...	...	27.1
{ For weight of Fat (lbs. \times 20)	...	...	...	...	...	16.4
{ For weight of Solids other than Fat	...	...	...	...	...	10.1
(lbs. \times 4) ...	...	...	...	...	...	55.4
Total ...	...	...	...	...	...	10.0
Deductions	...	...	...	...	...	45.4
Points gained...	...	...	...	...	...
Remarks and Awards ...	...	...	...	...	...

CLASS 23.—DEXTER COWS.

Number ...	...	...	...	361 Brokenhurst Mignonette	362 Etna.	363 La Mancha Maudslayi	364 Shane Black Sally.
Name ...	...	...	...	1918.	Jan. 27, 1915.	1913.	July 7, 1914.
Born ...	...	...	...	...	...	...	...
Number of Calves ...	...	...	...	...	...	...	...
Last Calved ...	...	...	...	July 12.	May 15.	May 18.	April 16.
Days since Calving ...	...	...	...	95	154	151	183
Live weight, in lbs. ...	...	...	...	874	696	803	745
Weight of Milk, 1st day ...	...	...	...	Morn	Morn	Morn	Morn
Weight of Milk, 2nd day ...	...	...	...	Even	Even	Even	Even
Total ...	14.6	12.2	...	14.6	9.2	15.8	10.0
Average ...	8.8	9.5	...	8.0	13.4	10.0	8.8
...	23.4	21.7	...	17.2	9.0	12.3	7.7
...	11.7	10.8	...	22.4	33.4	25.7	20.1
...	...	...	...	8.6	11.2	16.7	10.0
Percentage { Fat ...	4.91	4.76	...	5.61	5.22	3.20	3.64
Composition of { Solids other than Fat	9.17	8.84	...	9.31	9.36	8.80	8.88
the Milk. { Total Solids	14.08	13.60	...	14.92	14.58	12.00	12.52
Actual weight of Fat, in lbs. ...	5.75	5.15	...	4.85	5.85	5.35	5.33
Calculation of Points multiply by 20...	11.50	10.30	...	9.70	11.70	10.70	9.10
Actual weight of Solids other than Fat, in lbs.	1.07	.96	...	.80	1.05	1.47	1.15
Calculation of Points multiply by 4 ...	4.30	3.80	...	3.20	4.20	5.90	4.60
Points { For time since Calving	5.5	...	...	11.4	...	11.1	12.0
{ For weight of Milk (lbs.) ...	22.5	...	...	19.8	...	29.5	18.2
{ For weight of Fat (lbs. × 20)	21.8	...	...	21.4	...	19.8	13.8
{ For weight of Solids other than Fat	...	...	...	...	...	...	...
(lbs. × 4) ...	8.1	...	...	7.4	...	10.5	6.1
Total ...	57.9	...	...	60.0	...	70.9	50.1
Deductions ...	...	...	...	...	...	...	...
Points gained...	57.9	...	...	60.0	...	70.9	50.1
Remarks and Awards ...	Reserve for Nutt Challenge Cup.	...	...	...	...	1st Prize. Nutt Challenge Cup.	...

CLASS 25.—BRITISH FRIESIAN COWS (BORN ON OR PREVIOUS TO 1ST AUGUST, 1917.)—(Continued.)

Number ...	...	...	...	375	376	380	381
Name ...	...	...	...	Woodside Cntry.	Tarvin Garland.	Gaulic Cherry	Caddehall Peggy.
Born ...	...	...	...	July 20, 1916.	Mar. 6, 1917.	July 24, 1913.	June 25, 1916.
Number of Calves ...	...	...	...	4	4	5	4
Last Calved ...	...	...	...	Oct. 1.	May 26.	Sept. 11.	Aug. 25.
Days since Calving ...	...	...	...	15	143	35	52
Live weight, in lbs. ...	...	...	...	1,260	1,490	1,344	1,494
Weight of Milk, 1st day ...	...	...	...	Morn	Morn	Morn	Morn
Weight of Milk, 2nd day ...	...	...	...	Even	Even	Even	Even
Total ...	...	...	...	28-4	26-5	40-1	36-7
Average ...	...	...	...	26-5	26-9	38-0	37-4
Percentage { Fat ...	...	...	...	54-9	53-4	78-1	74-1
Composition of { Solids other than Fat	...	...	...	27-4	26-7	39-0	37-0
the Milk. { Total Solids	...	...	...	2-23	3-68	3-36	3-00
Actual weight of Fat, in lbs. ...	...	...	...	9-31	9-02	8-94	8-73
Calculation of Points multiply by 20 ...	...	...	...	11-54	12-70	12-30	11-73
Actual weight of Solids other than Fat, in lbs.	...	...	...	-61	-98	1-31	1-11
Calculation of Points multiply by 4 ...	...	...	...	12-2	10-6	20-2	22-2
Points { For time since Calving	...	...	...	2-56	2-40	3-48	3-23
{ For weight of Milk (lbs.	...	...	...	10-2	9-6	13-9	12-9
{ For weight of Fat (lbs. × 20)	...	...	...	10-4	6-4	10-1	10-6
{ For weight of Solids other than Fat	...	...	...	—	10-3	—	—
(lbs. × 4) ...	...	...	...	54-5	44-5	68-1	67-9
Total ...	...	...	...	34-8	34-8	51-6	50-2
Deductions ...	...	...	...	20-6	16-0	24-0	23-5
Points gained ...	...	...	...	109-9	105-6	143-7	142-8
Remarks and Awards ...	...	...	...	99-9	105-6	143-7	142-8
...	...	...	...	...	Reserve.	...	Very Highly Commended.

CLASS 25.—BRITISH FRIESIAN COWS (BORN ON OR PREVIOUS TO 1st AUGUST, 1917) *Continued.*

Number ...	...	...	...	383	...	388	...	390	...	392
Name ...	...	...	...	Blackmore Fina 2nd.	...	Kingswood Down Mkt	...	He-doo-stadden Doop and Hedde's a Dutch Goudshy	...	...
Born ...	...	...	...	April 4, 1915,	...	Dec. 4, 1916,	...	Dec. 15, 1914,	...	July 15, 1916,
Number of Calves ...	...	...	...	5	...	2	...	5	...	4
Last Calved ...	...	...	...	Sept. 20,	...	Sept. 17,	...	Sept. 19,	...	July 7,
Days since Calving ...	...	...	...	26	...	29	...	27	...	101
Live weight, in lbs. ...	...	...	...	1,250	...	1,014	...	1,400	...	1,210
Weight of Milk, 1st day ...	...	...	...	Morn	Even	Morn	Even	Morn	Even	Morn
Weight of Milk, 2nd day ...	...	...	...	41-5	32-5	29-0	26-2	25-5	21-7	41-9
Total ...	...	...	...	41-8	35-8	32-2	25-9	25-4	22-0	40-4
Average ...	...	...	...	83-3	68-3	61-2	52-1	50-9	43-7	82-3
Percentage { Fat ...	...	...	...	41-6	34-1	30-6	26-0	25-4	21-8	41-1
Composition of { Solids other than Fat	...	...	...	3-12	3-81	2-92	4-22	2-78	3-16	3-65
the Milk. { Total Solids	...	...	...	9-28	8-95	9-10	8-88	9-02	8-44	8-95
Actual weight of Fat, in lbs. ...	...	...	...	12-40	12-76	12-02	13-10	11-80	11-60	12-00
Calculation of Points multiply by 20 ...	...	...	...	1-30	1-30	895	1-10	-71	-69	1-25
Actual weight of Solids other than Fat, in lbs	...	...	...	26-0	26-0	17-90	22-0	14-2	13-8	25-0
Calculation of Points multiply by 4 ...	...	...	...	3-85	3-05	2-78	2-32	2-30	1-84	3-08
Points { For time since Calving	...	...	...	15-4	12-2	11-1	9-3	9-2	7-4	14-7
{ For weight of Milk (lbs.)	...	...	...	75-7	...	56-6	...	47-2	...	6-1
{ For weight of Fat (lbs. \times 20)	...	...	...	52-0	...	39-9	...	28-0	...	71-9
{ For weight of Solids other than Fat	...	...	...	27-6	...	20-4	...	16-6	...	52-0
(lbs. \times 4) ...	...	...	...	155-3	...	116-9	...	91-8	...	28-3
Total ...	...	...	...	...	...	10-0	...	20-0	...	158-3
Deductions ...	...	...	...	...	...	100-9	...	71-8	...	158-3
Points gained ...	...	...	...	155-3	...	...	...	...	...	...
Remarks and Awards ...	...	...	...	2nd Prize, Shirley Challenge Cup, Reserve for Barham Challenge Cup	...	...	...	...	...	1st Prize, Barham Challenge Cup

Number	Name	393	394
Born	Moss Peggy.	Hedgie's Dutch Stately
Number of Calves	Sept. 26, 1916.	Nov. 25, 1916.
Last Calved	4	3
Days since Calving	Aug. 28.	May 12.
Live weight, in lbs.	49	157
							1,327	1,379
Weight of Milk, 1st day	Morn	Morn
Weight of Milk, 2nd day	Even	Even
Total	34.1	26.4
Average	26.1	22.7
Percentage of Fat	31.9	30.8
Composition of the Milk.	25.9	21.3
Total Solids	66.0	57.2
Actual weight of Fat, in lbs.	52.0	44.0
Calculation of Points multiply by 20...	33.0	22.0
Actual weight of Solids other than Fat, in lbs.	26.0	20.6
Calculation of Points multiply by 4	3.25	2.38
For time since Calving	9.17	8.52
For weight of Milk (lbs.)	12.42	10.58
For weight of Fat (lbs. × 20)	1.07	.59
For weight of Solids other than Fat (lbs. × 4)	21.4	11.8
Total	20.2	10.5
Deductions	2.32	2.44
Points gained...	9.3	9.8
	0.9	11.7
	59.0	50.6
	41.6	22.3
	21.4	17.2
	122.9	101.8
	—	30.0
	122.9	71.8
Remarks and Awards	Highly Commended.	

CLASS 26.—BRITISH FRIESIAN COWS (BORN AFTER 1ST AUGUST, 1917, AND PREVIOUS TO 1ST AUGUST, 1919) — Continued

Number ...	...	...	...	402 Petvigard's Countess.	404 Ongar Gentle.	405 Docking Auntie.	107 Beccles Silver Queen.
Name ...	...	...	...	Aug. 24, 1918, 2	Jan. 20, 1918, 2	Aug. 20, 1918, 2	Feb. 11, 1918, 1
Born ...	...	...	...	...	...	...	...
Number of Calves ...	...	...	...	...	...	...	...
Last Calved ...	...	...	...	July 1, 107	Aug. 20, 57	Sept. 7, 39	Aug. 26, 51
Days since Calving ...	...	...	...	1,294	1,532	1,140	1,324
Live weight, in lbs. ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 1st day ...	...	...	...	26.2	30.9	25.3	37.8
Weight of Milk, 2nd day ...	...	...	...	24.7	36.1	26.1	34.1
Total ...	...	...	...	50.9	67.0	51.4	71.9
Average ...	...	...	...	25.4	33.5	25.7	35.9
Percentage Composition of the Milk.	...	...	...	2.34	2.87	3.09	2.41
Actual weight of Fat, in lbs. ...	...	...	...	8.62	8.99	8.83	8.95
Calculation of Points multiply by 20...	...	...	...	10.96	11.86	11.92	11.36
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	5.95	5.53	5.79	5.86
Calculation of Points multiply by 4 ...	...	...	...	11.9	19.2	15.8	17.2
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	2.20	3.00	2.27	3.22
Calculation of Points multiply by 4 ...	...	...	...	8.8	12.0	9.1	12.9
Points	...	...	...	6.7	1.7	—	1.1
For time since Calving ...	...	...	...	45.7	61.5	46.8	66.1
For weight of Fat (lbs. × 20) ...	...	...	...	27.3	29.8	28.8	44.2
For weight of Solids other than Fat (lbs. × 4) ...	...	...	...	15.6	21.6	16.7	23.3
Total ...	...	...	...	95.3	114.6	92.3	134.7
Deductions ...	...	...	...	20.0	20.0	—	10.0
Points gained...	...	...	...	75.3	94.6	92.3	124.7
Remarks and Awards ...	...	...	...	Highly Commended.	Highly Commended.	Highly Commended.	2nd Prize.

CLASS 20.—BRITISH FRIESIAN COWS (BORN AFTER 1st AUGUST, 1917, AND PREVIOUS TO 1st AUGUST, 1919) *Continued.*

Number ...	408	409	412	414
Name ...	Cynric St. Malo.	Northdean Victoria	Duninold Iphigene.	Arthure Elot
Born ...	Feb. 3, 1918.	Nov. 8, 1918.	Jan. 12, 1918.	Mar. 10, 1918.
Number of Calves ...	...	...	3	3
Last Calved ...	Sept. 17.	Sept. 6.	June 26.	Sept. 12.
Days since Calving ...	29	40	112	31
Live weight, in lbs. ...	1,400	1,231	1,309	1,239
Weight of Milk, 1st day ...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	35-9 27-2	30-4 24-5	15-4 12-2	33-3 18-8
Total ...	35-5 32-1	29-2 24-9	15-1 10-9	23-1 17-0
Average ...	71-4 59-3	59-6 49-4	30-5 23-1	50-7 35-8
Percentage { Fat ...	35-7 29-6	29-8 24-7	15-2 11-5	28-3 17-9
(Composition of { Solids other than Fat	2-30 3-21	2-47 3-31	3-44 4-11	4-69 4-81
the Milk. { Total Solids ...	8-98 8-75	8-55 8-47	9-28 9-21	8-83 8-53
Actual weight of Fat, in lbs. ...	11-28 11-96	11-02 11-78	12-72 13-32	13-52 13-34
Calculation of Points multiply by 20... {	-825 -95	-74 -82	-525 -47	-133 -83
Actual weight of Solids other than Fat, in lbs. {	10-50 10-0	14-8 16-4	10-50 9-4	26-6 26-6
Calculation of Points multiply by 4 ... {	3-22 2-60	2-55 2-10	1-42 1-06	2-50 1-53
Points { For time since Calving	12-8 10-4	10-2 8-4	5-7 4-2	10-00 9-1
{ For weight of Milk (lbs.)	65-3	54-5	7-2	46-2
{ For weight of Fat (lbs. × 20)	35-5	31-2	26-7	43-8
{ For weight of Solids other than Fat	23-2	18-6	9-9	16-1
(lbs. × 4) ... { Total ...	124-0	104-3	63-7	106-1
{ Deductions ...	10-0	20-0	---	---
{ Points gained... {	114-0	84-3	63-7	106-1
Remarks and Awards ...	3rd Prize			Highly Commended.

CLASS 26.—BRITISH FRIESIAN COWS (BORN AFTER 1ST AUGUST, 1917, AND PREVIOUS TO 1ST AUGUST, 1919)—Continued.

Number	...	...	...	...	415	416	418	422
Name	...	...	...	...	Hadham Duchess.	Attimore Sweet Maid.	Macknade Endlaw.	Chaddestley Peggy.
Born	...	...	...	...	Aug. 18, 1918.	Oct. 20, 1917.	Dec. 9, 1918.	Mar. 6, 1919.
Number of Calves	...	...	...	...	1	2	1	—
Last Calved	...	...	...	...	Oct. 3.	Sept. 4.	Sept. 13.	Oct. 23, 1921.
Days since Calving	...	...	...	...	13	42	33	356
Live weight, in lbs.	...	...	...	...	1,323	1,292	1,241	1,391
Weight of Milk, 1st day	...	...	...	...	Morn	Morn	Morn	Morn
Weight of Milk, 2nd day	...	...	...	...	Even	Even	Even	Even
Total	...	...	...	...	37-8	27-9	23-5	15-1
Average	...	...	...	...	34-4	18-0	19-0	11-8
Percentage	...	...	...	...	31-9	25-3	20-8	14-0
Composition of	...	...	...	...	69-7	65-0	47-8	30-0
the Milk.	...	...	...	...	34-8	32-5	23-9	15-0
Total Solids	...	...	...	...	3-86	1-57	2-05	3-00
Actual weight of Fat, in lbs.	...	...	...	...	9-24	8-37	9-11	9-04
Calculation of Points multiply by 20...	...	...	...	...	13-10	11-00	11-16	12-04
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	1-35	-51	-49	-585
Calculation of Points multiply by 4	...	...	...	...	27-00	10-2	9-8	11-70
Points	...	...	...	...	3-22	2-72	2-18	1-36
For time since Calving	...	...	...	...	12-9	10-9	8-7	5-4
For weight of Milk (lbs.)	...	...	...	...	—	0-2	—	12-0
For weight of Fat (lbs. × 20)	...	...	...	...	67-2	54-1	43-8	27-3
For weight of Solids other than Fat	...	...	...	...	58-0	22-1	22-6	22-1
(lbs. × 4)	...	...	...	...	24-3	18-0	15-7	9-9
Total	...	...	...	...	149-5	94-4	82-1	71-3
Deductions	...	...	...	...	—	40-0	10-0	—
Points gained	...	...	...	...	149-5	54-4	72-1	71-3
Remarks and Awards	...	...	...	...	1st Prize.	—	—	—

CLASS 27.—BRITISH FRIESIAN HELPERS (BORN ON OR AFTER 1ST AUGUST, 1919)

Number ...	...	...	...	425	431	434	437
Name ...	...	...	...	Mapleton Elaise.	Thurston Evelyn.	Thurston Eve.	Haebo Teves Untdy.
Born ...	...	...	...	April 30, 1920.	Mar. 10, 1920.	Dec. 4, 1919.	May 4, 1920.
Number of Calves ...	...	...	...	...	...	...	...
Last Calved ...	...	...	...	Aug. 22, 55	Sept. 30, 16	Sept. 25, 21	Aug. 30, 47
Days since Calving ...	...	...	...	...	...	...	...
Live weight, in lbs. ...	...	...	...	1,198	1,307	1,275	1,012
Weight of Milk, 1st day ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	...	...	18-8 14-3	23-4 18-7	20-7 17-6	25-6 23-1
Total ...	...	...	...	17-6 15-3	23-6 20-3	22-1 17-3	23-7 23-1
Average ...	...	...	...	36-4 29-6	47-0 39-0	42-8 31-9	49-3 46-5
Percentage ...	...	...	...	18-2 14-8	23-5 19-5	21-4 17-4	24-6 23-2
Composition of the Milk. { Fat ...	...	...	...	3-30 4-82	3-05 4-06	3-14 3-26	2-15 2-31
Actual weight of Fat, in lbs. ...	...	...	...	9-18 8-86	9-27 9-00	9-42 9-24	8-97 8-91
Calculation of Points multiply by 20 ...	...	...	...	12-48 13-68	12-32 13-06	12-56 12-50	11-12 11-22
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	-60 -715	-72 -79	-67 -67	-53 -535
Calculation of Points multiply by 4 ...	...	...	...	12-00 14-3	14-4 15-8	13-4 11-4	10-6 10-7
Points { For time since Calving ...	...	...	...	1-67 1-32	2-18 1-75	2-02 1-61	2-20 2-07
For weight of Milk (lbs.) ...	...	...	...	6-7 5-3	8-7 7-00	8-1 6-4	8-8 8-3
For weight of Fat (lbs. \times 20) ...	...	...	...	1-5	---	---	---
For weight of Solids other than Fat (lbs. \times 4) ...	...	...	...	33-0 26-3	43-0 30-2	38-8 24-8	47-8 21-3
Total ...	...	...	...	12-0	15-7	14-5	17-1
Deductions ...	...	...	...	72-8	88-9	78-1	86-9
Points gained ...	...	...	...	---	---	---	20-0
Remarks and Awards ...	...	...	...	72-8	88-9	78-1	66-9
	...	...	...		1st Prize.	Highly Commended.	

CLASS 27—BRITISH FRIESIAN HEIFERS (BORN ON OR AFTER 1ST AUGUST, 1919) —(continued)

Number ... Name ...	...	...	...	...	438 Iache Teelt Dec. 29, 1919.	439 Hedges Bles Fairy. Jan. 14, 1920.	440 Hedges Bles Fairy Jan. 20, 1920.
Born ...	...	...	...	...	Sept. 2. 44	Sept. 21. 25	Sept. 6. 40
Number of Calves ...	...	...	...	...	1,299	1,235	1,148
Last Calved ...	...	...	...	...	Morn	Morn	Morn
Days since Calving ...	...	...	...	...	Even	Even	Even
Live weight, in lbs. ...	...	...	...	...	25.3	25.0	31.1
Weight of Milk, 1st day ...	...	...	...	...	26.1	24.2	23.1
Weight of Milk, 2nd day ...	...	...	...	...	51.4	49.2	28.7
Total ...	...	...	...	...	25.7	40.3	59.8
Average ...	...	...	...	...	22.6	20.1	46.4
Percentage { Fat ...	...	...	...	...	2.39	2.68	2.62
Composition of { Solids other than Fat ...	...	...	...	...	9.17	8.51	8.68
the Milk. { Total Solids ...	...	...	...	...	11.56	12.26	11.30
Actual weight of Fat, in lbs. ...	...	...	...	...	615	66	78
Calculation of Points multiply by 20... Actual weight of Solids other than Fat, in lbs. Calculation of Points multiply by 4 ...	...	...	...	...	12.30	15.00	15.6
...	...	...	...	...	2.36	1.71	2.60
...	...	...	...	...	9.4	6.8	10.4
Points { For time since Calving ...	...	...	...	...	0.4	—	—
{ For weight of Milk (lbs.) ...	...	...	...	...	48.3	44.7	53.1
{ For weight of Fat (lbs. < 20) ...	...	...	...	...	30.3	28.2	32.4
{ For weight of Solids other than Fat (lbs. < 4) ...	...	...	...	...	17.4	15.3	18.3
Total ...	...	...	...	...	96.4	88.2	103.8
Deductions ...	...	...	...	...	10.0	10.0	20.0
Points gained...	...	...	...	...	86.4	78.2	83.8
Remarks and Awards ...	...	...	...	...	2nd Prize.	Reserve.	3rd Prize.

CLASS 28—WELSH BLACK COW—Continued.

Number ...	...	...	...	447
Name ...	...	...	...	Snowdon Rose
Born ...	...	...	...	July 20, 1881.
Number of Calves	...	...	...	9
Last Calved ...	...	...	...	Aug. 30,
Days since Calving	...	...	...	47
Live weight, in lbs.	...	...	...	1,381
Weight of Milk, 1st day	...	...	...	Morn Even
Weight of Milk, 2nd day	...	...	...	18-2 20-7
Total ...	...	...	...	23-3 19-3
Average ...	...	...	...	41-5 40-0
Percentage	...	...	...	20-7 20-0
Composition of { Fat	...	...	...	3-66 4-77
the Milk. { Solids other than Fat	...	...	...	8-92 8-57
Total Solids	...	...	...	12-58 13-34
Actual weight of Fat, in lbs.	...	...	...	-76 -95
Calculation of Points multiply by 20..	...	...	...	15-2 19-00
Actual weight of Solids other than Fat, in lbs.	...	...	...	1-85 1-71
Calculation of Points multiply by 4 ...	...	...	...	7-4 6-8
Points { For weight of Milk (lbs.)	...	...	...	40-7
{ For weight of Fat (lbs. × 20)	...	...	...	34-2
{ For weight of Solids other than Fat	...	...	...	14-2
(lbs. × 4) ...	...	...	...	89-8
Total ...	...	...	...	89-8
Deductions	...	...	...	...
Points gained...	...	...	...	89-8
Remarks and Awards ...	...	...	...	...

THE MILKING TRIALS FOR GOATS, 1922.

By THOS. W. PALMER.

THE Goats entered in the Milking Trials were classified exactly as last year, *i.e.*, one class being for She Goats qualified as Star or Q Star Goats, and the other for Goats not eligible for previous class.

For the purpose of my Report. I propose after I have given the winners in the above classes and making a tabulated result of (Classes 44 and 45 (which will be found at the end of this Report), to take the goats as they are classified for Inspection and make a few remarks thereon.

Entries.—16 Entries were received for Class 44 (Star or Q Star), one less than in 1921. and 27 for Class 45, ten more than previous year, the total (43) constituting a record. Of the goats entered, 14 competed in the first class, and 21 in the latter—a total of 35, necessitating 70 samples of milk being analysed.

Class 44—Star or Q Star Milkers.—All the goats entered in this class had obtained, previous to the 1922 Dairy Show, sufficient points to enable them to qualify as a Star or Q Star goat, and so compete in this class. The winner, Miss Pope's "Problem of Bashley" Q*Q*Q* (the three Q Stars denoting that this is the third generation to obtain this honour), was second in the same competition last year, when she gave the record yield for any Dairy Show, 11.3 lbs. after being in milk for 165 days. This year she gave 11.7 lbs. after a lactation period of 227 days. This yield was, however, beaten by the second prize winner—Mrs. Abbey's "Didgemere Dulcie" Q*Q*, who gave 12.6 lbs. of milk, with a lactation period of 185 days. It is worthy of note that this animal was first in Inspection, and has now won a first prize three years in succession at the Dairy Show, *i.e.*, in 1920 as a kid, 1921 as a goathing, 1922 as an adult goat. Mrs. Abbey's "Tremedda Lidia" Q*Q*, was third, with a yield of 9.1 lbs., having been in milk 210 days.

Class 45.—Goats not eligible for Class 44.—The first prize was awarded to Mrs. Morcom's "Leazes Fortitude" with a total yield of 9.5 lbs. milk, having been in milk 232 days. Miss Booth's "Springfield Pierette" Q* was second, lactation period 162 days, and yield 8.9 lbs., whilst Mrs. Cammack's "Keighley Idabel" Q*, with a yield of 6.8 lbs. after 164 days in milk, was third.

I now take the animals as classified for Inspection.

Class 46.—Toggenburg.—Of the five entries in this class, four were also entered in the Milking Competition, and one was absent. Mrs. Straker's "Leazes Hackee" gained Highly Commended with

a yield of 7·4 lbs., after being in milk 208 days. Total points 18·1. This goat also took the Straker Cup for the Toggenburg goat, gaining the highest number of points in Inspection and Milking. Next in merit was the same exhibitor's "Leazes Benedicta," yield 6 lbs., after a lactation period of 218 days. Total points 15·6, followed by Miss Henderson's "Riding Cherry," Q*, with a total of 14·7 points. Her yield was 5·7 lbs. after 183 days in milk. The average yield of 6·3 lbs. is quite good, whilst all three goats were above the standard for butter fat.

Class 47.—British Toggenburg.—19 Entries in the Inspection Class, 17 of which were also entered for the Milking, one absentee. In this class, the goat gaining the highest number of points, 26·6, was Mrs. Abbey's "Tremedda Lidia," Q*Q* (who gained third prize in Class 44), yield of milk 9·1 lbs., days in milk 210. Four goats were Highly Commended, two in Class 44 and two in Class 45. Of the former, Mrs. Maurice's "Tremedda Gaietta" Q*Q*, gave 10 lbs., with 193 days' lactation, and total points 25·0, whilst the same owner's "Spring Flower," Q*, had 19·6 points, yield 7·9 lbs., days in milk 144. The two in Class 45 were the Duchess of Newcastle's "Cophthorne Oakapple," who secured 19 points, yield 8·5 lbs., days in milk 94, and Mrs. Potton's "Rayleigh Primrose," yield 8·1 lbs., days in milk 189, total points 18·7. Of the remainder, 7 gave from 5·4 lbs. to 6·3 lbs., two gave 4·1 lbs., just coming over the standard, whilst two gave 3·6 lbs., one of the latter losing a point for deficiency in butter fat at both milkings. The average yield of milk for this class was 6·2 lbs.—quite fair.

Class 48.—British Alpine.—Seven entries in Inspection class, one absent, four in the Milking Trials. The outstanding goat here was Mrs. Abbey's "Didgemere Dulcie," Q*Q*, already referred to, who broke the previous records for yield of milk. Her total points were 29·7, yield 12·6 lbs., days in milk 185. In addition to gaining first in Inspection in her class, she was second in Milking in Class 45—awarded the B. G. S. Cup and Challenge Certificate for best goat in Female Adult Classes, and was one of the group of three goats to whom the Riding Challenge Cup was awarded. The remaining three goats in this class gave yields of 6·4 lbs., 6·4 lbs., and 6·2 lbs., days in milk 229, 202, and 198, the average yield of milk for the class working out at 7·9 lbs.

Class 49.—British Saanen.—Five entries in Inspection Class, two in Milking Trials, one absent. The only competitor, Mrs. Morcom's "Leazes Fortitude," proved to be first prize winner in Class 45, her yield being 9·5 lbs., after being in milk for 232 days—a good performance. Her total points were 23·4, and whilst her butter fat was over standard on both occasions, she did not give the necessary percentage (4 per cent.) to obtain the coveted Q Star.

Class 50.—Anglo-Nubian.—Six entries in Inspection Class, four in Milking Trials, two absentees, and one could not compete owing to ill-health after arrival at the Show. Miss Pelly's "Nash Bella,"

Q*, had only recently kidded (period of lactation 31 days), consequently did not score any time points, yield 7·7 lbs., butter fat good, total points 19·2. Reserve in Class 45. This goat obtained the Q Star and took the Pomeroy Cup.

Class 51.—Any other Variety.—Fourteen entries in Inspection Class, 11 in Milking Trials, one absentee. Here Miss Pope's "Problem of Bashley" Q*Q*Q*, the winner of the first prize in Class 44, stands well above the other competitors. Her yield (11·7 lbs.) was excellent, as she had been in milk for 227 days, whilst her butter fat, 4·89 and 4·72 was also good, especially for such a large quantity of milk, total points 30·3. In addition to the British Goat Society's Challenge Certificate for the Best Dual Purpose Goat, this exhibit was awarded the Baroness Burdett-Coutts' Cup, the Tremedda Selene Cup and the Dewar Trophy. The next in merit was Mr. E. A. Walmisley's "Atherstone Faith," Q*, who after being in milk for 181 days, gave 10·7 lbs., total points 26·5, butter fat over 4 per cent. at both tests. Miss Booth's "Springfield Pierette," Q*, gained second prize in Class 45, yield 8·9 lbs., lactation period 162 days, butter fat over 4 per cent., so she gained the Q Star, total points 21·7. "Keighley Idabel," Q*, the property of Mrs. Cammack also obtained the Q Star, in addition to gaining third prize in Class 45, yield 6·8 lbs., lactation 164 days, points 21·0, her butter fat being excellent, 6·87 and 7·32. Mr. E. A. Walmisley's "Atherstone Charity," Q*, and Miss Henderson's "Riding Tulip" Q*, were Highly Commended in Class 44, lactation 247 and 190 days, yield 7·0 lbs., and 7·2 lbs., points 20·6 and 19·1 respectively. The other four competitors gave from 5·3 lbs. to 6·1 lbs. The average yield for this class was 7·3 lbs., which is good.

I think I should explain that the British Toggenburg, British Alpine and British Saanen Goats are classified as such only for Show purposes—actually by breeding, most of them would be Anglo-Nubian-Swiss, the same as the Any Other Variety Class.

In the second tabulated statement I have given the statistics of the Goat Milking Classes at the Dairy Shows for 1919 to 1922, inclusive, and it is interesting to observe that whilst the animals entered in the Star Class are heavier in weight, their average yield of milk is not only higher, but is of good quality, both as regards butter fat and other solids, and the period of lactation is also longer.

TABLE 1.

Class.	Description.	Number in Class.		Average Live weight.	Average yield of Milk.	Highest yield.	Lowest yield.	Average period of Lactation.	Average Fat.	Average Solids not Fat.	Number of Animals below Standard for Fat		Average points gained.
		Entered.	Competing.								a.m.	p.m.	
46	Toggenburg ...	4	3	lbs. 112	lbs. 6.3	7.4	5.7	Days. 203	3.91	8.85	—	—	16.1
47	British Toggenburg ...	17	16	129	6.2	10.0	3.6	180	4.30	9.04	1	1	15.3
48	British Alpine ...	4	4	152	7.9	12.6	6.2	203	4.35	8.85	—	—	20.2
49	British Saanen ...	2	1	120	9.5	9.5	—	232	3.77	9.23	—	—	23.4
50	Anglo-Nubian ...	4	1	132	7.7	7.7	—	31	5.58	9.30	—	—	19.2
51	Any other Variety ...	11	10	147	7.3	11.7	4.6	203	5.12	9.20	—	—	19.9

TABLE 2.

Description of Class.	Year of Show.	Number of Animals Competing.	Average live weight of each Animal.	Average period of Lactation.	Average weight of Milk.		Average Weight of Milk per day	Highest yield.	Lowest yield.	Percentages.			
					a.m.	p.m.				a.m.	p.m.	Solids.	
Star Milkers ...	1919	6	—	Days. 261	3.6	3.1	6.7	10.8	4.5	4.13	3.89	a.m. 8.89	p.m. 9.02
Star or Q Star Milkers ...	1920	7	130	219	3.9	3.2	7.1	9.0	4.9	4.61	4.72	9.02	9.17
Do. ...	1921	16	145	192	3.7	3.1	6.8	11.3	4.1	5.64	5.50	9.12	9.27
Do. ...	1922	14	144	190	4.4	3.6	7.0	12.6	5.6	4.60	4.52	9.07	9.19
Not eligible as Star Milkers	1919	15	—	220	2.1	2.0	4.1	6.8	0.7	5.82	5.91	9.74	9.78
Do. ...	1920	20	113	196	2.6	2.2	4.8	8.7	1.0	5.07	4.95	9.30	9.28
Do. ...	1921	14	123	145	3.3	2.8	6.1	9.4	2.9	5.10	4.96	8.75	8.88
Do. ...	1922	21	131	188	3.2	2.9	6.1	8.5	3.6	4.41	4.62	8.98	9.05

CLASS 44.—GOATS (QUALIFIED AS STAR OR "Q" STAR MILKERS).—(Continued).

Number ...	...	...	...	531	538	539	541
Name ...	...	...	...	Whitcomb Polly,	Tremedda Gaketa,	Spring Flower,	Bidgeure Dulea,
Born ...	...	...	...	May 15, 1913,	Mar. 3, 1919,	May 16, 1920,	Mar. 9, 1920,
Number of Kids ...	...	...	...	2	3	3	...
Last Kiddled ...	...	...	...	May 14	April 5,	May 25,	April 13,
Days since Kidding ...	...	...	...	155	133	144	185
Live weight, in lbs. ...	...	...	...	111	144	156	150
Weight of Milk, 1st day ...	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day ...	...	...	...	3-2 2-6	6-0 4-6	4-6 3-8	8-0 4-8
Total ...	...	...	...	2-8 2-7	5-3 4-3	4-2 3-2	7-1 5-4
Average ...	...	...	...	6-0 5-3	11-3 8-9	8-8 7-0	15-1 10-2
Percentage { Fat ...	...	...	...	3-0 2-6	5-6 4-4	4-4 3-5	7-5 5-1
Composition of { Solids other than Fat	...	...	...	3-97 4-52	4-52 4-41	4-72 4-52	4-36 3-85
the Milk. { Total Solids	...	...	...	8-69 8-84	9-40 9-45	9-00 9-14	8-16 7-97
Actual weight of Fat, in lbs. ...	...	...	...	12-96 13-36	13-02 13-86	13-72 13-66	12-52 11-82
Calculation of Points multiply by 20...	...	...	...	.12 .12	.15 .19	.20 .16	.33 .20
Actual weight of Solids other than Fat, in lbs.	...	...	...	2-40 2-32	3-00 3-80	4-00 3-20	6-60 4-00
Calculation of Points multiply by 4 ...	...	...	...	.27 .232	.528 .417	.397 .318	.612 .407
Points { For time since Kidding	...	...	...	1-08 .928	2-112 1-668	1-588 1-272	2-448 1-628
{ For weight of Milk (lbs.)	...	...	...	1-9	2-5	1-7	2-4
{ For weight of Fat (lbs. × 20)	...	...	...	5-6	10-0	7-9	12-6
{ For weight of Solids other than Fat	...	...	...	4-8	8-8	7-2	10-6
(lbs. × 4) ...	...	...	...	2-0	3-8	2-9	4-1
Total ...	...	...	...	14-3	25-1	19-7	29-7
Deductions ...	...	...	...	—	—	—	—
Points gained...	...	...	...	14-3	25-1	19-7	29-7
Remarks and Awards ...	...	...	...	Highly Commended.	Highly Commended.	Highly Commended.	2nd Prize Reserve for Barones-Banquet-Coffin's Challenge Cup, Tremedda Solene Challenge Cup, and Dewar Challenge Trophy.

CLASS 44.—GOATS (QUALIFIED AS STAR OR "Q" STAR MILKERS)—Continued.

Number ...	...	...	...	...	542	543	562	563
Name ...	...	...	...	...	Preference.	Tremedda Lalage 2nd	Problem of Basilev.	Riding Tulip.
Born ...	...	...	...	...	Mar. 28, 1917.	Feb. 27, 1920.	Mar. 7, 1918.	April 26, 1919.
Number of Kids	...	...	...	...	—	—	6	2
Last Kiddled ...	...	...	...	...	Mar. 27.	April 1.	Mar. 2.	April 8.
Days since Kidding	...	...	...	...	202	198	227	190
Live weight, in lbs.	...	...	...	...	170	144	159	148
Weight of Milk, 1st day	...	...	...	...	Morn	Even	Morn	Even
Weight of Milk, 2nd day	...	...	...	...	3-6	2-9	6-8	3-7
Total	...	...	...	...	3-7	2-7	5-8	3-4
Average	...	...	...	...	7-3	5-6	12-6	7-6
Percentage { Fat ...	...	...	...	...	3-6	2-8	6-3	3-8
Composition of { Solids other than Fat	...	...	...	...	4-15	4-54	4-89	4-75
the Milk. { Total Solids	...	...	...	...	8-49	8-92	9-19	9-67
Actual weight of Fat, in lbs.	...	...	...	...	12-64	13-46	14-08	14-42
Calculation of Points multiply by 20...	...	...	...	...	-15	-13	-31	-18
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	3-00	2-60	6-20	3-60
Calculation of Points multiply by 4 ...	...	...	...	...	-307	-250	-578	-370
Points { For time since Kidding	...	...	...	...	1-228	1-000	2-312	1-480
	For weight of Milk (lbs.)	...	...	...	2-7	2-6	3-1	2-5
	For weight of Fat (lbs. × 20)	...	...	...	6-4	6-2	11-7	7-2
	For weight of Solids other than Fat (lbs. × 4)	...	...	...	5-6	5-8	11-2	6-6
Total	...	...	...	...	2-2	2-4	4-3	2-8
Deductions	...	...	...	...	16-9	17-0	30-3	19-1
Points gained...	...	...	...	...	16-9	17-0	30-3	19-1
Remarks and Awards ...	...	...	...	...
	...	...	...	...				Highly Commended.

1st Prize, 1st Place.
2nd Prize, 2nd Place.
3rd Prize, 3rd Place.
4th Prize, 4th Place.
5th Prize, 5th Place.
6th Prize, 6th Place.
7th Prize, 7th Place.
8th Prize, 8th Place.
9th Prize, 9th Place.
10th Prize, 10th Place.
11th Prize, 11th Place.
12th Prize, 12th Place.
13th Prize, 13th Place.
14th Prize, 14th Place.
15th Prize, 15th Place.
16th Prize, 16th Place.
17th Prize, 17th Place.
18th Prize, 18th Place.
19th Prize, 19th Place.
20th Prize, 20th Place.

CLASS 44.—GOATS (QUALIFIED AS STAR OR "Q" STAR MILKERS).—(continued).

Number ...	...	...	...	570	571
Name ...	...	...	...	Atherstone Faith.	Atherstone Charity.
Born ...	...	...	...	May 3, 1918.	April 24, 1918.
Number of Kids ...	...	...	...	April 17.	Feb. 10.
Last Kidding ...	...	...	...	181	247
Days since Kidding ...	...	...	...	160	122
Live weight, in lbs. ...	...	...	...	Morn Even	Morn Even
Weight of Milk, 1st day ...	...	...	...	5.2 4.8	3.8 3.3
Weight of Milk, 2nd day ...	...	...	...	5.9 5.6	3.9 3.2
Total ...	...	...	...	11.1 10.4	7.7 6.5
Average ...	...	...	...	5.5 5.2	3.8 3.2
Percentage { Fat ...	...	...	...	4.16 4.82	5.55 5.33
Composition of { Solids other than Fat	...	...	...	9.14 9.32	9.17 9.43
the Milk. { Total Solids ...	...	...	...	13.30 14.14	14.72 14.76
Actual weight of Fat, in lbs. ...	...	...	...	.23 .25	.21 .17
Calculation of Points multiply by 20...	...	...	...	4.60 5.00	4.20 3.40
Actual weight of Solids other than Fat, in lbs.	...	...	...	.5 .480	.349 .302
Calculation of Points multiply by 4 ...	...	...	...	2.000 1.920	1.396 1.208
Points { For time since Kidding ...	...	...	...	2.3	3.4
{ For weight of Milk (lbs.) ...	...	...	...	10.7	7.0
{ For weight of Fat (lbs. × 20) ...	...	...	...	9.6	7.6
{ For weight of Solids other than Fat	...	...	...	3.9	2.6
(lbs. × 4) ...	...	...	...	26.5	20.6
Total ...	...	...	...	26.5	20.6
Deductions ...	...	...	...	—	—
Points gained...	...	...	...	26.5	20.6
Remarks and Awards ...	...	...	...	Reserve.	Highly Commended.

CLASS 45.—SHE GOATS (NOT ELIGIBLE FOR CLASS 44).

Number	...	...	...	520	521	522	523
Name	...	...	...	Leazes Benedicta.	Leazes Hackee.	Odly Cloe.	Copthorne Avern.
Born	...	...	...	April 18, 1920.	Feb. 15, 1920.	Feb. 17, 1919.	Mar. 24, 1919.
Number of Kids	...	...	...	2	2	2	2
Last Kid	...	...	...	Mar. 11.	Mar. 21.	May 15.	Mar. 28.
Days since Kidding	...	...	...	218	208	154	201
Live weight, in lbs.	...	...	...	100	117	118	126
Weight of Milk, 1st day	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	3.5 2.4	3.9 3.5	1.9 1.7	1.9 1.9
Total	...	...	...	3.1 3.0	3.7 3.7	2.0 1.7	2.3 2.2
Average	...	...	...	6.6 5.4	7.6 7.2	3.9 3.4	4.2 4.1
Percentage	...	...	...	3.3 2.7	3.8 3.6	1.9 1.7	2.1 2.0
Composition of	...	...	...	3.76 4.18	3.33 3.92	2.96 2.95	3.98 3.47
the Milk.	...	...	...	8.94 8.62	8.73 8.42	8.14 8.25	9.36 9.41
Total Solids	...	...	...	12.70 12.80	12.06 12.34	11.10 11.20	13.34 12.88
Actual weight of Fat, in lbs.	...	...	...	.12 .11	.13 .14	.06 .05	.08 .07
Calculation of Points multiply by 20...	...	...	...	2.40 2.2	2.60 2.8	1.2 1.00	1.60 1.40
Actual weight of Solids other than Fat, in lbs.	...	...	...	.295 .233	.333 .304	.155 .138	.165 .188
Calculation of Points multiply by 4 ...	...	...	...	1.180 .932	1.332 1.216	.620 .552	.780 .752
Points	...	...	...	2.9	2.8	1.9	2.6
For time since Kidding	...	...	...	6.0	7.4	3.6	4.1
For weight of Milk (lbs.)	...	...	...	4.6	5.4	2.2	3.0
For weight of Fat (lbs. × 20)	...	...	...	2.1	2.5	1.2	1.5
For weight of Solids other than Fat	...	...	...	15.6	18.1	8.9	11.2
(lbs. × 4)	...	...	...	—	—	2.0	—
Total	...	...	...	15.6	18.1	6.9	11.2
Deductions	...	...	...	—	—	—	—
Points gained...	...	...	...	—	—	—	—
Remarks and Awards	...	...	...	Highly Commended.	Straker	—	—
	...	...	...	Challenge	'up.	—	—

CLASS 45.—SHE GOATS (NOT ELIGIBLE FOR CLASS 44) *(Continued.)*

Number ..	...	...	...	524	527	529	530
Name ..	...	...	...	Copthorne Oakapple,	Raydon Cherrypse,	Fetham Marigold,	Fetham Aster,
Born ..	...	...	...	Mar. 27, 1917.	April 30, 1920,	Mar. 17, 1918,	April 16, 1920,
Number of Kids ..	...	...	...	3	1	2	2
Last Kidding ..	...	...	...	July 14.	Mar. 15.	April 18.	Feb. 25.
Days since Kidding ..	...	...	...	94	214	180	232
Live weight, in lbs.	...	...	...	139	155	117	132
				Morn	Morn	Morn	Morn
				Even	Even	Even	Even
Weight of Milk, 1st day ..	...	...	...	4.4	1.0	3.3	2.2
Weight of Milk, 2nd day ..	...	...	...	4.7	1.5	3.1	2.1
Total ..	...	...	...	9.1	3.4	6.4	4.3
Average ..	...	...	...	4.5	1.7	3.2	2.1
Percentage { Fat ...	...	...	...	3.76	4.81	3.32	4.56
Composition of { Solids other than Fat	...	...	...	8.94	9.15	8.72	9.10
the Milk. { Total Solids ..	...	...	...	12.70	13.96	12.04	13.66
Actual weight of Fat, in lbs. ...	...	...	...	.17	.08	.11	.10
Calculation of Points multiply by 20...	...	...	...	3.40	1.60	2.20	2.00
Actual weight of Solids other than Fat, in lbs.	...	...	...	.402	.177	.279	.191
Calculation of Points multiply by 4 ...	...	...	...	1.608	.708	1.116	.764
Points { For time since Kidding	...	...	...	.9	2.9	2.3	3.2
{ For weight of Milk (lbs.)	...	...	...	8.5	3.6	6.0	4.1
{ For weight of Fat (lbs. × 20)	...	...	...	6.6	3.2	4.2	3.8
{ For weight of Solids other than Fat	...	...	...	3.0	1.3	2.1	1.5
(lbs. × 4)	...	...	...	19.0	11.0	14.6	12.6
Total ..	...	...	...	19.0	11.0	14.6	12.6
Deductions ..	...	...	...	
Points gained...	...	...	...	19.0	11.0	14.6	12.6
Remarks and Awards ...	...	...	...	Highly Commended.			

The Milking Trials for Goats, 1922.

CLASS 45.—SHE GOATS (NOT ELIGIBLE FOR CLASS 44)—Continued.

Number ...	...	...	...	532	534	535	537
Name ...	...	...	...	Weston of Weston's.	Beechmead Adeline.	Beechmead Barbara.	Rayleigh Primrose.
Born ...	...	...	...	Feb. 7, 1921.	Feb. 25, 1919.	Feb. 22, 1920.	Mar., 1918.
Number of Kids ...	...	...	...	—	4	2	6
Last Kid ...	...	...	...	June 4.	Mar. 23.	Feb. 26.	April 9
Days since Kidding ...	...	...	...	134	206	231	189
Live weight, in lbs. ...	...	...	...	136	104	111	128
Weight of Milk, 1st day ...	...	...	...	Morn	Morn	Morn	Morn
Weight of Milk, 2nd day ...	...	...	...	Even	Even	Even	Even
Total ...	...	...	...	3-3 2-6	3-3 2-7	3-1 2-5	4-4 3-7
Average ...	...	...	...	2-8 2-7	3-2 2-8	3-0 2-4	4-6 3-6
Percentage { Fat ...	...	...	...	6-1 5-3	6-5 5-5	6-1 4-9	9-0 7-3
Composition { Solids other than Fat ...	...	...	...	3-0 2-6	3-2 2-7	3-0 2-4	4-5 3-6
the Milk. { Total Solids ...	...	...	...	4-66 4-61	5-02 4-70	5-37 6-02	3-10 3-60
Actual weight of Fat, in lbs. ...	...	...	...	9-52 9-67	8-96 9-02	9-29 8-84	8-70 8-80
Calculation of Points multiply by 20 ...	...	...	...	14-18 14-28	13-98 13-72	14-66 14-86	11-80 12-40
Actual weight of Solids other than Fat, in lbs. ...	...	...	...	14-14 14-12	14-10 13-13	14-16 14-14	11-11 11-13
Calculation of Points multiply by 4 ...	...	...	...	2-80 2-40	3-20 2-6	3-7 2-8	2-8 2-6
For time since Kidding ...	...	...	...	2-86 2-52	2-87 2-44	2-76 2-12	3-31 3-17
For weight of Milk (lbs.) ...	...	...	...	1-144 1-008	1-148 .976	1-104 .848	1-564 1-268
For weight of Fat (lbs. × 20) ...	...	...	...	1-5	2-7	3-1	2-4
For weight of Solids other than Fat ...	...	...	...	5-6	5-9	5-4	8-1
(lbs. × 4) ...	...	...	...	5-2	5-8	6-0	5-4
Total ...	...	...	...	2-1	2-1	1-9	2-8
Deductions ...	...	...	...	14-4	16-5	16-4	18-7
Points gained ...	...	...	...	14-4	16-5	16-4	18-7
Remarks and Awards ...	...	...	...				Highly Commended.

CLASS 45.—SHE GOATS (NOT ELIGIBLE FOR CLASS 44)—(continued).

Number ...	...	...	...	545	551	553	561
Name ...	...	...	...	Didgenere Dumping	Leavess Fortitude.	Nash Bella,	Springfield Pierette.
Born ...	...	...	...	June 1, 1920.	Mar. 14, 1919.	June 2, 1917.	April 12, 1919.
Number of Kids ...	...	...	...	Feb. 28.	Feb. 25.	Sept. 15.	May 7.
Days since Kidding ...	...	...	...	229	232	31	162
Live weight, in lbs. ...	...	...	...	144	120	132	159
Weight of Milk, 1st day	...	...	...	Morn Even	Morn Even	Morn Even	Morn Even
Weight of Milk, 2nd day	...	...	...	3-8 2-0	5-2 4-7	3-8 4-2	4-5 4-2
Total	...	...	...	3-6 2-8	4-0 4-3	3-4 4-7	4-7 4-4
Average	...	...	...	7-3 5-7	10-1 9-0	7-8 7-6	9-2 8-6
Percentage of Fat ...	...	...	...	3-6 2-8	5-0 4-5	3-9 3-8	4-6 4-3
Composition of Solids other than Fat	...	...	...	3-33 5-40	3-04 3-91	5-62 5-56	4-10 4-41
the Milk. { Total Solids	...	...	...	8-21 9-84	9-22 9-25	9-34 9-27	9-04 9-19
Actual weight of Fat, in lbs. ...	...	...	...	11-54 15-24	12-86 13-16	14-96 14-82	13-14 13-60
Calculation of Points multiply by 20...	...	...	...	12 15	18 18	22 21	19 19
Actual weight of Solids other than Fat, in lbs.	...	...	...	2-4 3-00	3-6 3-6	4-4 4-2	3-8 3-8
Calculation of Points multiply by 4 ...	...	...	...	295 276	46 415	364 352	416 394
Points { For time since Kidding	...	...	...	1-180 1-104	1-84 1-660	1-456 1-408	1-664 1-576
For weight of Milk (lbs.)	...	...	...	3-1	3-2	—	2-0
For weight of Fat (lbs. × 20)	...	...	...	6-4	9-5	7-7	8-9
For weight of Solids other than Fat	...	...	...	5-4	7-2	8-6	7-6
(lbs. × 4) ...	...	...	...	2-3	3-5	2-9	3-2
Total ...	...	...	...	17-2	23-4	19-2	21-7
Deductions	...	...	...	—	—	—	—
Points gained...	...	...	...	17-2	23-4	19-2	21-7
Remarks and Awards ...	...	...	...	1st Prize.	Reserve. Pomeroy Perpetual Challenge Cup.	2nd Prize.	2nd Prize.

CLASS 45.—SHE GOATS (NOT ELIGIBLE FOR CLASS 44)—Continued.

Number ...	...	...	...	...	572
Name ...	...	...	...	...	Atherstone Dnah.
Born ...	...	...	...	...	Feb. 28, 1920.
Number of Kids ...	...	...	...	...	---
Last Kidled ...	...	...	...	...	Mar. 11.
Days since Kidling ...	...	...	...	...	218
Live weight, in lbs. ...	...	...	...	...	148
Weight of Milk, 1st day	...	...	...	...	Morn
Weight of Milk, 2nd day	...	...	...	...	Even
Total ...	...	...	...	...	2.8 2.4
Average ...	...	...	...	...	2.9 2.7
Percentage of Fat ...	...	...	...	...	5.7 5.1
Composition of Solids other than Fat	...	...	...	...	2.8 2.5
the Milk. Total Solids	...	...	...	...	5.99 5.90
Actual weight of Fat, in lbs. ...	...	...	...	...	9.51 9.54
Calculation of Points multiply by 20...	...	...	...	...	15.50 15.44
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	.17 .15
Calculation of Points multiply by 4 ...	...	...	...	...	3.4 3.00
Actual weight of Solids other than Fat, in lbs.	...	...	...	...	.261 .238
Calculation of Points multiply by 4 ...	...	...	...	...	1.064 .952
Points { For time since Kidling	...	...	...	...	2.9
For weight of Milk (lbs.)	...	...	...	...	5.3
For weight of Fat (lbs. × 20)	...	...	...	...	6.4
For weight of Solids other than Fat	...	...	...	...	2.0
(lbs. × 4) ...	...	...	...	...	16.6
Total ...	...	...	...	...	—
Deductions	...	...	...	...	16.6
Points gained...	...	...	...	...
Remarks and Awards ...	...	...	...	...

THE DAIRY SHOW BUTTER TESTS OF 1922.

By R. H. EVANS, B.Sc.

THE Prizes in the Butter Tests were awarded according to the following scale of points :—

One point for every ounce of butter.

One point for every completed 10 days since calving, calculated to the first day of the Show, deducting the first 40 days. The maximum points to be twelve.

The award of points for lactation is governed by the following conditions :—

- (a) Cows served within 90 days after calving, but not later, may obtain maximum points for lactation.
- (b) Cows which have calved 91 to 120 days, and have been served within that time can only obtain a maximum of 8 points for lactation.
- (c) Cows not served within 120 days after calving can only obtain a maximum of 5 points for lactation.
- (d) Cows that have calved 121 to 150 days, and have been served within that period, but not later, can only obtain a maximum of 4 points for lactation.
- (e) Cows not served within 150 days after calving can only obtain a maximum of 2 points for lactation.
- (f) Cows which have calved over 150 days, whether served or not after that time, will not receive any points for lactation.

Fractions of ounces of butter, and incomplete periods of less than 10 days, to be worked out in decimals, and added to the total points.

A Certificate, giving the last date of calving (which must be at least 14 days before the opening day of the Show), and the last date of service, and stating that the cow has not broken her service since that date, signed by the owner of the cow exhibited, or his agent, must in every case be brought to the Steward of Dairying as soon as possible after the animal has arrived in the Hall.

In the case of cows obtaining the same number of points, the prize to be awarded to the cow that has been the longest time in milk.

No prize will be given to animals in the Butter Tests which do not come up to the following standards:—

Breed.	Cows under 5 years. Points.	Cows 5 years and over. Points.
Pedigree Shorthorns	30	34
Non-Pedigree Shorthorns	30	34
British Friesians	30	34
Lincoln Red Shorthorns	30	34
Jerseys	30	35
Guernseys	27	30
Ayrshires	27	30
Red Polls	30	34
Devons	27	30
South Devons	30	34
Welsh	27	30
Kerries	26	29
Dexters	26	29

Certificates of Merit and Highly Commended cards will be given to animals other than prize-winners that reach the above standards.

The notice of Exhibitors is particularly drawn to the importance attached to the Certificate, as to the date of calving and serving, referred to above.

The total number of entries for the 1922 Butter Tests were as follows:—

Pedigree Shorthorns	42
Non-Pedigree Shorthorns	23
Lincolnshire Reds	10
Jerseys	35
Guernseys	21
Red Polls	32
Devons	7
Kerries	19
Dexters	4
British Friesians	43
Welsh Black	5
Ayrshires	24
South Devons	6
Total	<u>271</u>

Of this number, 187 cows were actually tested, which constitutes a record for the London Dairy Show, showing an increase of 14 over the 1921 figures.

The outstanding features of the 1922 test were:—

- (a) A decrease of 24 in the Shorthorn Classes ;
- (b) An increase of 18 in the number of Ayrshires ;
- (c) A number of Welsh Cattle were tested for the first time since 1900 ;
- (d) An increase of 14 in the number of British Friesians tested.

No fresh records were obtained in the case of individual cows.

The highest amount of butter obtained was that of Mr. John Evens' Lincoln Red Shorthorn, "Burton Red Rose IV," which gave 3 lbs. 0 $\frac{1}{4}$ oz. in 24 hours.

Mr. F. W. Morley's "Cockerham Purity," and Mr. J. Russell's "Kingswood Gladys," each gave 3 lbs. of butter.

Other cows worthy of special mention are:—Mr. John Evens' "Burton Ruby Spot 14th" (Lincoln Red), with a yield of 2 lbs. 12 ozs.; Mr. M. C. Pilkington's "Harefield Ruth" (Red Poll), with a yield of 2 lbs. 10 ozs.; Mr. A. M. Monteath's Guernsey cow "Polly 2nd of Hillside," with a yield of 2 lbs. 15 $\frac{3}{4}$ ozs., and a butter ratio of 1 lb. of butter to 17.34 lbs. of milk; and Mr. G. Holt Thomas' British Friesian "Cymric Cheeky," with a yield of 2 lbs. 13 $\frac{3}{4}$ ozs., and "Blackmore Ena 2nd," with a yield of 2 lbs. 8 $\frac{1}{2}$ ozs.

In the Shorthorn Class—39 in number—9 cows yielded over 2 lbs. of butter in 24 hours. The average butter ratio for this breed is 1:30.75, *i.e.*, 1 lb. of butter to every 3 gallons of milk. The average number of points for the breed is 25.68, and compares unfavourably with the performance of the breed in previous years. Some difficulty was experienced in getting the cream of a number of Shorthorns to yield its butter. Temperament and feeding may partly account for this phenomenon, but the whole matter requires scientific investigation before the actual cause can be established.

The outstanding feature of the 1922 Test is the performance of the seven Lincolnshire Red Shorthorns tested. The average weight of butter yielded by these animals amounted to 2 lbs. 3 $\frac{3}{4}$ ozs., which constitutes a record for the London Dairy Show. The previous record was held by the Jerseys in 1912 with 2 lbs. 1 oz.

The butter ratio of these seven Lincolnshire Red Shorthorns was 1:24.82.

The performance of the Jersey Class was slightly below the average for the breed. The Guernseys were well up to the average.

In the Red Poll Class the same difficulty in churning was experienced as has already been referred to in the case of the Shorthorns. The Ayrshires, South Devons, Devons, Kerries, and Dexters were average classes, and the British Friesians maintained the standard reached during the two preceding years.

We have no previous figures with which to compare the four Welsh Cattle tested, but an average of 1 lb. 13 $\frac{1}{4}$ oz. of butter, and a butter ratio of 1:24.23 is an excellent beginning for the breed.

My best thanks are due to my two colleagues, Mr. T. H. Hammond and Mr. L. J. Craufurd (representing the Jersey Cattle Society), who rendered me valuable assistance in the carrying out of the tests.

The following table gives the average results of the tests for all breeds competing:—

Year.			Total No. of Cows.	Average weight of 24 hours' Milk.	Average Yield of Butter.	Average Butter Ratio.	Average No. of Points.
				lbs.	lbs. ozs.		
1909	..	..	61	42	1 12 $\frac{3}{4}$	23.51	33.30
1910	..	..	62	44	1 12 $\frac{1}{2}$	25.03	32.50
1911	..	..	55	43 $\frac{1}{2}$	1 11	25.87	30.90
1912	..	..	54	49 $\frac{1}{2}$	1 14 $\frac{3}{4}$	25.82	33.08
1913	..	..	62	42	1 9 $\frac{1}{2}$	26.05	29.26
1914	..	..	45	45 $\frac{1}{2}$	1 12 $\frac{1}{4}$	25.67	31.69
1915	..	..	45	46 $\frac{1}{4}$	1 9	29.83	28.49
1919	..	..	94	37 $\frac{1}{2}$	1 9 $\frac{3}{4}$	23.43	28.61
1920	..	..	111	39	1 9 $\frac{1}{4}$	24.21	28.25
1921	..	..	173	39 $\frac{3}{4}$	1 6 $\frac{1}{2}$	25.35	27.68
1922	..	..	187	42 $\frac{1}{2}$	1 8 $\frac{1}{4}$	27.99	26.31

TABLE I.—NUMBER OF CATTLE TESTED SINCE 1897.

Breed	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
Shorthorns	9	23	21	22	15	31	18	14	17	22	26	26	19	22	26	30	26	20	20	24	30	63	39	—	—	—
Lincoln Reds	—	—	—	—	—	—	—	—	—	—	7	9	8	8	6	6	5	4	2	4	4	7	7	—	—	—
Jerseys	14	17	15	29	25	30	20	12	18	13	13	16	22	18	18	7	18	9	10	22	21	24	27	—	—	—
Guernseys	3	5	4	7	8	1	5	3	3	2	2	2	2	2	1	2	6	5	7	16	14	19	15	—	—	—
Red Polls...	7	4	9	7	2	6	5	4	11	12	11	3	4	4	1	1	—	—	1	11	12	17	23	—	—	—
Ayrshires ...	3	1	2	—	1	1	—	1	3	2	—	4	—	1	—	4	—	—	—	—	—	2	20	—	—	—
Sth. Devons	—	—	—	—	—	—	2	2	3	5	—	—	4	7	2	4	2	6	3	—	—	5	5	—	—	—
Dutch	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kerries and Dexters	—	1	2	—	1	2	—	2	1	2	2	5	2	—	1	—	5	—	—	10	13	20	16	—	—	—
Welsh Black	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—
Cross-breds	4	1	6	2	2	11	8	6	8	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
British Friesians	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	2	15	10	24	—	—	—
Devons ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	2	6	7	—	—	—
	41	53	60	68	54	82	59	44	64	68	61	65	61	62	55	54	62	45	45	94	111	173	187	—	—	—

TABLE II.—NUMBER OF CATTLE OF THE VARIOUS BREEDS TESTED SINCE 1895, WITH THEIR AVERAGE PERIOD OF LACTATION, WEIGHT OF BUTTER, BUTTER RATIOS, AND POINTS.

Year	No.	Breed	Average No. of Days in Milk	Average Weight of Butter	Average Butter Ratio	Average No. of Points
From 1895 to 1900	106	Shorthorns ...	50½	lbs. ozs. 1 11	lbs. 23.81	—
1901	15	" ...	44	2 0½	25.69	33.69
1902	31	" ...	50	1 11½	27.38	23.89
1903	18	" ...	41	1 11	33.59	28.44
1904	14	" ...	41½	1 10	29.31	27.47
1905	17	" ...	53	1 13½	27.65	31.25
1906	22	" ...	58	1 6¾	32.87	25.08
1907	26	" ...	62	1 11¾	29.23	30.24
1908	35	" ...	49	1 11	29.39	28.05
1909	19	" ...	54	1 14	27.25	32.31
1910	22	" ...	43	1 13½	27.53	31.39
1911	26	" ...	39	1 12½	28.42	29.28
1912	30	" ...	44	2 0½	26.58	33.75
1913	26	" ...	38	1 10½	31.45	27.54
1914	20	" ...	40	1 13½	27.61	29.50
1915	20	" ...	44	1 10½	33.68	26.99
1919 ...	24	" ...	34	1 13½	24.35	28.82
1920	30	" ...	34	1 11½	25.43	27.91
1921	63	" ...	29	1 8	30.25	24.20
1922	39	" ...	30	1 9	30.75	25.68
1907	7	Lincoln Reds	57	1 13½	28.31	31.91
1908	9	" ...	61	1 12	28.00	30.60
1909	8	" ...	44	1 14¾	24.81	32.09
1910	8	" ...	79	1 10¾	27.15	31.39
1911	6	" ...	78	1 11	27.03	30.97
1912	6	" ...	36	1 14½	26.72	30.92
1913	5	" ...	44	1 13½	27.78	29.72
1914	4	" ...	49	1 9¾	30.21	27.37
1915	2	" ...	106	1 10½	52.81	32.11
1919	4	" ...	58	1 13¾	29.20	32.32
1920	4	" ...	59	1 5½	31.61	23.90
1921	7	" ...	64	1 13½	27.13	31.40
1922 ...	7	" ...	31½	2 3¾	24.82	25.89
From 1895 to 1900	126	Jerseys ...	99	1 10½	19.15	—
1901	25	" ...	141	1 9½	17.80	34.44
1902	30	" ...	124	1 10	18.46	33.19
1903	20	" ...	141	1 11	18.12	36.13
1904	12	" ...	117	1 13½	19.62	36.79
1905	18	" ...	134	1 10¾	19.48	35.51
1906	13	" ...	119	1 10½	20.89	33.49
1907	13	" ...	111	1 11	19.71	34.49
1908	16	" ...	115	1 7½	22.35	30.00
1909	22	" ...	116	1 13½	18.36	37.12
1910	18	" ...	123	1 13½	18.43	37.05
1911	18	" ...	116	1 11½	19.98	34.11
1912	7	" ...	143	2 1	18.26	40.77
1913	18	" ...	136	1 10½	19.24	35.85
1914	9	" ...	142	1 15	18.77	40.12

TABLE II.—NUMBER OF CATTLE OF THE VARIOUS BREEDS TESTED SINCE 1895, WITH THEIR AVERAGE PERIOD OF LACTATION, WEIGHT OF BUTTER, BUTTER RATIOS, AND POINTS—*Continued.*

Year	No.	Breed	Average No. of Days in Milk	Average Weight of Butter	Average Butter Ratio	Average No of Points
				lbs. ozs.	lbs.	
1915	10	Jerseys ...	123	1 11 $\frac{3}{4}$	19.00	35.56
1919	22	" ...	111	1 11 $\frac{1}{4}$	18.76	33.59
1920	21	" ...	106	1 11	18.85	32.74
1921	24	" ...	127	1 9 $\frac{1}{4}$	18.56	32.29
1922	27	" ...	105	1 9 $\frac{1}{2}$	19.82	31.99
From 1895 to 1900	23	Guernseys ...	71 $\frac{3}{4}$	1 9 $\frac{1}{2}$	21.86	—
1901	8	" ...	81	1 8 $\frac{3}{4}$	21.43	29.51
1902	1	" ...	17	1 3 $\frac{3}{4}$	21.46	19.75
1903	5	" ...	52	1 1	27.77	18.93
1904	3	" ...	98 $\frac{1}{2}$	1 10	20.65	31.91
1905	3	" ...	165 $\frac{3}{4}$	1 6 $\frac{3}{4}$	19.66	31.78
1906	2	" ...	138	1 3 $\frac{3}{4}$	27.00	28.45
1907	2	" ...	82	1 12 $\frac{1}{2}$	18.90	33.48
1908	2	" ...	142	1 13 $\frac{1}{2}$	19.47	37.90
1909	2	" ...	66	1 9 $\frac{1}{2}$	21.13	28.27
1910	2	" ...	57	1 3 $\frac{3}{4}$	26.80	21.93
1911	1	" ...	181	0 14	39.28	26.00
1912	2	" ...	53	1 2 $\frac{1}{2}$	24.32	20.55
1913	6	" ...	139	1 6 $\frac{1}{2}$	21.94	30.66
1914	5	" ...	110	1 6 $\frac{1}{4}$	21.88	29.53
1915	7	" ...	107	1 6 $\frac{1}{4}$	22.30	30.09
1919	16	" ...	80	1 7 $\frac{3}{4}$	19.76	27.16
1920	14	" ...	82	1 8 $\frac{1}{4}$	21.22	28.53
1921	19	" ...	82	1 8 $\frac{1}{4}$	20.45	27.47
1922	15	" ...	52	1 8 $\frac{3}{4}$	21.95	27.31
From 1895 to 1900	30	Red Polls ...	60 $\frac{1}{2}$	1 4 $\frac{3}{4}$	30.29	—
1901	2	" ...	80	1 8 $\frac{3}{8}$	25.50	28.77
1902	6	" ...	83	1 6 $\frac{1}{8}$	26.84	26.92
1903	5	" ...	124	1 0	39.60	21.39
1904	4	" ...	115 $\frac{1}{2}$	1 5 $\frac{1}{2}$	30.34	29.06
1905	11	" ...	74 $\frac{1}{2}$	1 3 $\frac{1}{2}$	28.78	22.76
1906	12	" ...	76	0 15	39.15	18.81
1907	11	" ...	99	1 2 $\frac{1}{4}$	33.21	23.96
1908	3	" ...	92	1 1	35.00	22.16
1909	4	" ...	86	1 4 $\frac{1}{2}$	32.73	25.37
1910	4	" ...	78	1 4 $\frac{1}{2}$	30.81	24.35
1911	1	" ...	76	0 15	36.60	18.60
1912	1	" ...	26	1 0	43.80	16.00
1915	1	" ...	31	—	—	—
1919	11	" ...	49	1 8 $\frac{1}{4}$	30.03	26.02
1920	12	" ...	61	1 5 $\frac{1}{2}$	31.46	23.66
1921	17	" ...	68	1 9 $\frac{1}{2}$	24.73	27.52
1922	23	" ...	59	1 3 $\frac{1}{2}$	34.09	21.75
From 1895 to 1900	8	Ayrshires ...	52	1 13 $\frac{1}{2}$	26.35	—
1901	1	" ...	125	1 7 $\frac{1}{2}$	27.65	32.10
1902	1	" ...	33	1 3 $\frac{1}{2}$	18.00	19.50
1904	1	" ...	116	0 12 $\frac{1}{2}$	35.20	20.10

TABLE II.—NUMBER OF CATTLE OF THE VARIOUS BREEDS TESTED SINCE 1895, WITH THEIR AVERAGE PERIOD OF LACTATION, WEIGHT OF BUTTER, BUTTER RATIOS, AND POINTS—*Continued.*

Year	No	Breed	Average No. of Days in Milk	Average Weight of Butter	Average Butter. Ratio	Average No. of Points
				lbs. ozs.	lbs.	
1905	3	Ayrshires ...	77	1 2 $\frac{3}{4}$	28.07	22.88
1906	2	" ...	23	1 11 $\frac{3}{4}$	25.51	27.70
1908	4	" ...	75	1 2	35.19	21.00
1910	1	" ...	88	1 15	25.93	35.80
1912	4	" ...	71	1 5 $\frac{1}{2}$	32.52	24.65
1921	2	" ...	39	2 5	20.15	37.20
1922 ...	20	" ...	32 $\frac{1}{2}$	1 10 $\frac{1}{4}$	31.92	32.18
1909	4	South Devons	105	1 13 $\frac{3}{4}$	24.77	33.66
1910	7	" ...	91	1 11 $\frac{1}{2}$	29.33	32.87
1911	2	" ...	144	1 5	38.98	31.52
1912	4	" ...	90	1 15 $\frac{1}{2}$	26.51	36.74
1913	2	" ...	62	1 8 $\frac{1}{4}$	30.96	26.50
1914	6	" ...	78	1 12	28.85	32.11
1915	3	" ...	42	1 1 $\frac{1}{4}$	40.50	17.88
1921	5	" ...	77	1 14 $\frac{1}{4}$	22.06	34.42
1922	5	" ...	55	1 13	27.04	29.25
From 1895 to 1900	3	D'xt'rs & Ker's	117	0 14 $\frac{3}{4}$	40.80	—
1901	1	" ...	83	1 6 $\frac{1}{4}$	21.17	26.55
1902	2	" ...	46	1 7 $\frac{3}{8}$	21.28	23.49
1904	2	" ...	72	0 14 $\frac{3}{4}$	21.31	18.45
1905	1	" ...	149	1 1 $\frac{1}{4}$	23.47	28.15
1906	2	" ...	33	1 13	22.40	29.10
1907	2	" ...	65	1 11 $\frac{1}{4}$	21.06	29.70
1908	5	" ...	124	1 6	24.47	29.13
1909	2	Kerries	75	1 6	20.86	25.65
1911	1	" ...	162	1 3 $\frac{1}{2}$	28.51	31.50
1913	5	" ...	43	1 3	25.98	19.70
1919	4	" ...	32	1 2 $\frac{1}{2}$	27.66	18.71
1920	8	" ...	63	1 7	22.81	25.77
1921	17	" ...	76	1 3 $\frac{1}{4}$	23.16	22.43
1922	13	" ...	51	1 1 $\frac{1}{4}$	29.33	19.34
1919	6	Dexters	129	0 15 $\frac{1}{4}$	23.48	23.84
1920	5	" ...	112	0 12 $\frac{1}{2}$	21.78	19.21
1921	3	" ...	153	0 11	24.33	22.30
1922 ...	3	" ...	143	0 13 $\frac{1}{2}$	25.82	21.73
1914	1	B't'h Friesians	102	1 3 $\frac{3}{4}$	44.87	25.70
1915	2	" ...	40	1 12	38.51	29.20
1919	2	" ...	28	1 10 $\frac{1}{4}$	36.05	26.50
1920	15	" ...	50	1 13	29.59	31.17
1921	10	" ...	85	2 3	28.26	39.00
1922	24	" ...	57	1 10	35.32	26.86
1919	5	Devons	60	1 9 $\frac{1}{4}$	24.47	27.57
1920	2	" ...	25	1 15 $\frac{1}{2}$	19.32	31.55
1921	6	" ...	48	1 15	21.92	32.60
1922 ...	7	" ...	47 $\frac{1}{2}$	1 10 $\frac{3}{4}$	27.00	28.53
1922	4	Welsh	52	1 13 $\frac{1}{4}$	24.23	30.45

TABLE III.—AVERAGE YIELD OF BUTTER OF THE DIFFERENT BREEDS AT DIFFERENT PERIODS.

Year	Breed	No of Cows	Days in Milk, 50	No. of Cows	Days in Milk, 100	No. of Cows	Days in Milk, 135	No. of Cows	Days in Milk, 190
1895 to			lbs. ozs.		lbs. ozs.		lbs. ozs.		lbs. ozs.
1900	Shorthorns	19	1 12 $\frac{1}{2}$	6	1 7 $\frac{1}{2}$	2	1 4 $\frac{3}{4}$	8	1 1 $\frac{1}{2}$
1901	"	2	1 8	—	—	1	2 6	—	—
1902	"	6	1 10 $\frac{1}{2}$	—	—	1	1 11	—	—
1903	"	3	1 7	—	—	1	1 6 $\frac{1}{2}$	—	—
1904	"	3	1 10 $\frac{1}{2}$	1	1 14 $\frac{1}{2}$	—	—	—	—
1905	"	2	1 1	1	2 0 $\frac{3}{4}$	2	1 7 $\frac{3}{4}$	—	—
1906	"	11	1 8 $\frac{1}{2}$	3	1 3 $\frac{1}{2}$	—	—	—	—
1907	"	11	1 9 $\frac{1}{2}$	2	1 9 $\frac{1}{4}$	1	0 15 $\frac{3}{4}$	—	—
1908	"	11	1 11 $\frac{3}{4}$	—	—	2	1 12	—	—
1909	"	11	2 0 $\frac{1}{2}$	5	1 11 $\frac{1}{2}$	3	1 8 $\frac{1}{2}$	—	—
1910	"	16	1 14 $\frac{1}{4}$	5	2 1	1	1 3 $\frac{1}{4}$	—	—
1911	"	20	1 13	6	1 9 $\frac{1}{2}$	—	—	—	—
1912	"	23	2 2 $\frac{3}{4}$	6	1 8 $\frac{3}{4}$	1	1 14	—	—
1913	"	20	1 11	5	1 8 $\frac{1}{4}$	1	1 5	—	—
1914	"	17	1 15	1	0 12	2	1 7 $\frac{1}{2}$	—	—
1915	"	17	1 11 $\frac{1}{2}$	2	1 5	—	—	—	—
1919	"	20	1 13 $\frac{3}{4}$	4	1 12 $\frac{1}{4}$	—	—	—	—
1920	"	25	1 12 $\frac{1}{4}$	5	1 6 $\frac{1}{2}$	—	—	—	—
1921	"	56	1 8 $\frac{1}{2}$	5	1 5 $\frac{1}{2}$	—	—	—	—
1922	"	33	1 9	5	1 4 $\frac{3}{4}$	1	1 $\frac{1}{2}$	—	—
1907	Lincoln Reds	3	1 12	1	1 11	—	—	—	—
1909	"	6	2 1	1	1 9 $\frac{3}{4}$	1	1 7	—	—
1910	"	4	1 10 $\frac{1}{2}$	—	—	3	1 10 $\frac{1}{2}$	1	1 13 $\frac{1}{2}$
1911	"	4	1 10 $\frac{1}{2}$	—	—	—	—	2	1 12
1912	"	5	1 15 $\frac{3}{4}$	1	1 8 $\frac{1}{2}$	—	—	—	—
1913	"	5	1 13 $\frac{1}{4}$	—	—	—	—	—	—
1914	"	3	1 9	1	1 12	—	—	—	—
1915	"	—	—	1	1 13 $\frac{1}{4}$	—	—	1	1 7
1919	"	2	1 14 $\frac{1}{4}$	1	2 3 $\frac{1}{2}$	1	1 6 $\frac{1}{2}$	—	—
1920	"	2	1 8 $\frac{1}{2}$	2	1 2 $\frac{1}{2}$	—	—	—	—
1921	"	4	1 14 $\frac{1}{2}$	1	1 10 $\frac{1}{2}$	2	1 11 $\frac{1}{2}$	—	—
1922	"	7	2 3 $\frac{1}{4}$	—	—	—	—	—	—
1895 to									
1900	Jerseys	23	1 10 $\frac{1}{4}$	15	1 8 $\frac{1}{2}$	11	1 8 $\frac{1}{8}$	31	1 10 $\frac{1}{2}$
1901	"	1	1 12	8	1 7 $\frac{1}{2}$	6	1 9	12	1 10 $\frac{1}{2}$
1902	"	4	1 9 $\frac{3}{8}$	3	1 8 $\frac{3}{8}$	2	1 14	9	1 11
1903	"	4	1 9 $\frac{3}{8}$	5	1 15	9	1 9 $\frac{3}{8}$	2	1 9 $\frac{3}{8}$
1904	"	2	1 10 $\frac{3}{8}$	3	2 2 $\frac{1}{4}$	4	2 0 $\frac{3}{8}$	1	1 13 $\frac{1}{2}$
1905	"	3	1 8 $\frac{1}{4}$	4	1 15 $\frac{1}{2}$	8	1 9 $\frac{1}{4}$	2	1 8 $\frac{1}{8}$
1906	"	5	1 10 $\frac{3}{8}$	3	1 3 $\frac{3}{4}$	4	1 15 $\frac{1}{4}$	1	1 5 $\frac{1}{4}$
1907	"	6	1 13 $\frac{1}{2}$	2	1 7 $\frac{3}{8}$	3	1 13	1	1 4 $\frac{3}{4}$
1908	"	4	1 14 $\frac{1}{2}$	3	1 10	4	1 1	2	1 2
1909	"	3	1 3	4	2 2 $\frac{1}{2}$	6	1 14 $\frac{3}{4}$	9	1 12

TABLE III.—AVERAGE YIELD OF BUTTER OF THE DIFFERENT BREEDS AT DIFFERENT PERIODS—*Continued.*

Year	Breed	No. of Cows	Days in Milk, 50	No. of Cows	Days in Milk, 100	No. of Cows	Days in Milk, 135	No. of Cows	Days in Milk, 190
			lbs. ozs.		lbs. ozs.		lbs. ozs.		lbs. ozs.
1910	Jerseys...	2	1 10 $\frac{1}{2}$	5	1 13 $\frac{1}{2}$	2	1 15 $\frac{1}{2}$	7	1 13 $\frac{1}{2}$
1911	"	3	1 0 $\frac{3}{4}$	6	1 11 $\frac{1}{2}$	2	2 5 $\frac{1}{2}$	4	1 12 $\frac{1}{2}$
1912	"	—	—	2	1 8 $\frac{3}{4}$	2	2 1	—	—
1913	"	1	1 5 $\frac{1}{4}$	5	1 11	1	1 12	8	1 7
1914	"	1	1 8	1	2 1 $\frac{1}{2}$	1	1 10	4	2 1
1915	"	2	1 9 $\frac{1}{2}$	1	1 8	1	2 0 $\frac{3}{4}$	5	1 13 $\frac{1}{4}$
1919	"	3	1 15 $\frac{1}{2}$	8	1 7 $\frac{1}{2}$	4	1 12 $\frac{3}{4}$	4	1 11 $\frac{1}{4}$
1920	"	6	1 13 $\frac{3}{4}$	4	1 11 $\frac{3}{4}$	3	1 14 $\frac{1}{2}$	6	1 5 $\frac{1}{2}$
1921	"	1	1 2 $\frac{3}{4}$	8	1 8 $\frac{3}{4}$	4	1 15	8	1 7 $\frac{1}{2}$
1922	"	4	1 12 $\frac{1}{2}$	8	1 11 $\frac{1}{2}$	7	1 8 $\frac{1}{2}$	8	1 6 $\frac{3}{4}$
1895 to									
1900	Guernseys	3	1 7 $\frac{1}{2}$	4	1 7 $\frac{1}{2}$	3	1 4 $\frac{3}{8}$	1	1 8
1901	"	1	1 15 $\frac{1}{2}$	2	1 5 $\frac{3}{4}$	—	—	2	1 8 $\frac{3}{8}$
1903	"	2	0 15 $\frac{1}{2}$	—	—	—	—	—	—
1904	"	2	1 6 $\frac{3}{4}$	—	—	1	2 0 $\frac{1}{2}$	—	—
1905	"	1	1 10 $\frac{1}{2}$	—	—	1	1 12 $\frac{1}{4}$	1	0 13 $\frac{1}{2}$
1906	"	—	—	1	1 1	1	1 5 $\frac{1}{2}$	—	—
1907	"	—	—	—	—	—	—	1	1 14
1908	"	1	1 13	—	—	—	—	1	1 14
1909	"	1	1 11	1	1 8 $\frac{1}{4}$	—	—	—	—
1910	"	1	1 3 $\frac{1}{2}$	1	1 3 $\frac{1}{2}$	—	—	—	—
1911	"	—	—	—	—	—	—	1	0 14
1912	"	1	1 3	1	1 2	—	—	—	—
1913	"	1	1 8	1	1 6 $\frac{3}{4}$	1	1 12	—	—
1914	"	2	1 11	—	—	—	—	3	1 3 $\frac{3}{4}$
1915	"	1	0 14 $\frac{1}{4}$	2	1 14	2	1 7 $\frac{3}{4}$	2	1 5 $\frac{1}{2}$
1919	"	8	1 8 $\frac{1}{4}$	2	1 11	2	1 2 $\frac{1}{4}$	4	1 7 $\frac{3}{4}$
1920	"	4	1 10	5	1 11 $\frac{1}{2}$	3	1 2 $\frac{1}{4}$	1	1 2
1921	"	7	1 12	5	1 5	2	1 7 $\frac{1}{2}$	5	1 7
1922	"	9	1 8 $\frac{1}{4}$	3	1 12	1	1 5 $\frac{1}{2}$	2	1 7
1895 to									
1900	Red Polls	10	1 4 $\frac{1}{2}$	2	1 8	2	0 12 $\frac{1}{2}$	1	0 11
1901	"	—	—	2	1 8 $\frac{5}{8}$	—	—	1	—
1902	"	—	—	3	1 8	—	—	—	1 2 $\frac{1}{4}$
1903	"	1	0 13 $\frac{3}{4}$	1	1 1 $\frac{1}{4}$	—	—	1	0 13
1904	"	1	1 13 $\frac{3}{4}$	2	1 1	1	1 7 $\frac{1}{2}$	—	—
1905	"	3	1 1	2	1 5	—	—	1	0 12
1906	"	7	1 0	—	—	2	0 14 $\frac{1}{4}$	—	—
1907	"	5	1 4	—	—	4	1 1 $\frac{1}{4}$	—	—
1908	"	1	1 2 $\frac{3}{4}$	—	—	—	—	1	1 1
1909	"	1	1 12	1	1 2 $\frac{3}{4}$	1	1 6 $\frac{1}{2}$	1	0 12 $\frac{1}{4}$
1910	"	2	1 3 $\frac{1}{4}$	1	1 9 $\frac{1}{4}$	—	—	1	1 2 $\frac{1}{4}$
1911	"	—	—	1	0 15 $\frac{1}{4}$	—	—	—	—
1912	"	1	1 0	—	—	—	—	—	—
1915	"	1	—	—	—	—	—	—	—
1919	"	6	1 10	5	1 6 $\frac{1}{4}$	—	—	—	—
1920	"	8	1 7 $\frac{1}{4}$	2	1 2	1	0 15 $\frac{1}{2}$	1	1 2
1921	"	7	1 12 $\frac{1}{4}$	6	1 6 $\frac{3}{4}$	2	1 9 $\frac{1}{4}$	2	1 7 $\frac{1}{2}$
1922	"	13	1 2 $\frac{3}{4}$	7	1 4	2	1 1 $\frac{1}{4}$	1	0 15

TABLE III.—AVERAGE YIELD OF BUTTER OF THE DIFFERENT BREEDS AT DIFFERENT PERIODS—*Continued.*

Year	Breed	No. of Cows	Days in Milk, 50	No. of Cows	Days in Milk, 100	No. of Cows	Days in Milk, 135	No. of Cows	Days in Milk, 190
			lbs. ozs.		lbs. ozs.		lbs. ozs.		lbs. ozs.
1908	Ayrshires	—	—	—	—	—	—	1	0 12
1910	"	—	—	1	1 15	—	—	—	—
1912	"	2	1 4½	2	1 6½	—	—	—	—
1921	"	2	2 5	—	—	—	—	—	—
1922	"	16	1 7¾	3	1 2¾	—	—	1	1 2¾
1909	South Devons	1	2 5¾	1	1 1¾	—	—	2	1 11½
1910	"	1	2 5¼	4	1 11½	1	2 0	1	0 12¾
1911	"	—	—	—	—	—	—	2	1 5
1912	"	2	2 0½	—	—	1	2 3½	1	1 10¼
1913	"	1	2 3½	1	0 13	—	—	—	—
1914	"	3	2 1	1	1 15	1	1 4½	1	1 2¾
1915	"	2	1 5¼	1	0 9	—	—	—	—
1921	"	1	2 6	3	1 8½	—	—	1	2 7
1922	"	2	2 2¾	3	1 10¼	—	—	—	—
1919	Devons	2	1 15½	2	1 6¼	1	1 3	—	—
1920	"	2	1 15½	—	—	—	—	—	—
1921	"	5	2 0½	—	—	—	—	1	1 6
1922	"	6	1 12¾	—	—	—	—	1	0 14½
1908	Kerries & Dexters	—	—	—	—	1	0 14	2	1 2
1909	"	1	1 5	—	—	1	1 7	—	—
1911	"	—	—	—	—	—	—	1	1 3½
1913	"	4	1 4¼	1	0 13½	—	—	—	—
1919	"	4	1 15	1	1 4	1	0 10½	2	0 14½
1920	"	5	1 5¾	3	1 5	2	0 14¼	2	1 2¾
1921	"	7	1 2½	5	1 4	2	0 15	6	0 14½
1922	Kerries...	7	1 2½	5	1 1	—	—	1	0 12
1922	Dexters ..	1	0 12	2	0 13	—	—	—	—
1914	British Friesians	—	—	—	—	1	1 3½	—	—
1915	"	1	1 14	1	1 10	—	—	—	—
1919	"	2	1 10½	—	—	—	—	—	—
1920	"	10	1 12¼	3	1 11¾	2	2 2¼	—	—
1921	"	3	2 3¼	2	1 14	3	2 6½	2	2 1½
1922	"	17	1 11½	3	1 12¾	2	1 0¾	2	1 0¾
1922	Welsh Black	2	1 14¾	2	1 4¾	—	—	—	—

TABLE IV.—COMPARISONS OF CHURNINGS WITH ANALYSES.

SHORTHORNS.

No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.		No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.	
	lbs.	ozs.	lbs.	ozs.		lbs.	ozs.	lbs.	ozs.
1	2	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	47	1	13 $\frac{1}{2}$	2	0 $\frac{1}{2}$
2	1	9	1	10 $\frac{1}{2}$	49	1	0	1	10 $\frac{1}{2}$
4	1	3 $\frac{1}{2}$	1	9 $\frac{1}{2}$	52	1	1 $\frac{1}{2}$	1	6 $\frac{3}{4}$
7	1	1 $\frac{1}{4}$	1	8 $\frac{1}{2}$	53	1	1 $\frac{1}{2}$	1	5 $\frac{3}{4}$
8	2	1	2	12 $\frac{3}{4}$	54	0	14 $\frac{1}{2}$	2	3 $\frac{1}{2}$
9	1	11 $\frac{3}{4}$	2	6 $\frac{1}{4}$	56	1	8 $\frac{1}{2}$	1	10 $\frac{1}{4}$
11	1	10	1	14 $\frac{3}{4}$	57	1	5 $\frac{3}{4}$	1	7 $\frac{1}{4}$
13	1	8	2	3 $\frac{1}{2}$	82	0	14 $\frac{3}{4}$	1	1 $\frac{1}{2}$
14	1	2 $\frac{3}{4}$	1	7 $\frac{1}{2}$	84	1	10 $\frac{1}{4}$	1	14 $\frac{1}{4}$
15	1	2 $\frac{3}{4}$	1	9 $\frac{3}{4}$	85	1	7	1	12 $\frac{1}{4}$
16	1	7	1	12	87	1	8	2	0
19	3	0	2	15 $\frac{3}{4}$	88	1	9	2	2 $\frac{1}{4}$
21	2	8	2	10 $\frac{1}{2}$	93	2	2	2	6 $\frac{1}{2}$
25	1	13	1	13 $\frac{1}{2}$	97	2	0	2	8
27	1	9 $\frac{1}{4}$	1	13 $\frac{3}{4}$	98	1	15	2	3 $\frac{1}{4}$
30	2	1	2	3	99	2	2 $\frac{1}{2}$	2	7 $\frac{1}{2}$
31	1	12	1	14 $\frac{1}{2}$	108	1	4	1	7 $\frac{1}{2}$
32	2	2 $\frac{3}{4}$	2	2 $\frac{1}{2}$	110	0	15 $\frac{1}{2}$	1	1 $\frac{1}{2}$
38	1	5 $\frac{1}{2}$	1	10	111	0	14 $\frac{1}{2}$	1	3 $\frac{1}{2}$
43	1	4	1	8 $\frac{3}{4}$					
						60	14 $\frac{3}{4}$	76	13

LINCOLN RED SHORTHORNS.

112	1	7 $\frac{1}{2}$	1	4 $\frac{3}{4}$	117	2	4	1	14 $\frac{3}{4}$
113	2	6 $\frac{3}{4}$	2	6 $\frac{3}{4}$	119	2	12	3	2 $\frac{1}{4}$
115	2	5 $\frac{3}{4}$	2	0 $\frac{1}{2}$	121	1	6	1	8
116	3	0 $\frac{1}{4}$	2	10 $\frac{1}{4}$					
						15	10 $\frac{1}{2}$	14	15 $\frac{1}{4}$

JERSEYS.

131	1	4 $\frac{1}{2}$	1	3 $\frac{1}{2}$	162	1	2	1	5 $\frac{1}{4}$
136	1	11 $\frac{3}{4}$	1	13 $\frac{1}{4}$	163	1	11 $\frac{3}{4}$	1	14
137	1	5	1	6 $\frac{3}{4}$	164	1	12 $\frac{1}{2}$	1	10 $\frac{1}{4}$
138	1	7 $\frac{3}{4}$	1	3 $\frac{3}{4}$	165	1	15 $\frac{3}{4}$	1	12 $\frac{1}{2}$
143	1	2 $\frac{1}{2}$	1	5 $\frac{1}{2}$	166	1	9	1	9 $\frac{3}{4}$
147	1	15	1	13 $\frac{1}{4}$	168	1	12 $\frac{1}{2}$	1	11 $\frac{3}{4}$
152	1	5	1	3 $\frac{3}{4}$	169	1	12 $\frac{1}{2}$	1	11 $\frac{3}{4}$
153	1	6 $\frac{1}{2}$	1	4 $\frac{3}{4}$	170	1	5 $\frac{3}{4}$	1	5 $\frac{1}{4}$
154	1	12	1	13 $\frac{1}{4}$	177	1	15 $\frac{3}{4}$	1	13
156	1	8 $\frac{1}{2}$	1	8	178	1	9 $\frac{1}{4}$	1	8 $\frac{1}{2}$
158	1	5 $\frac{1}{2}$	1	5 $\frac{3}{4}$	179	2	4 $\frac{1}{2}$	1	15 $\frac{3}{4}$
159	2	1 $\frac{1}{4}$	1	13 $\frac{1}{4}$	190	1	9	1	7 $\frac{1}{2}$
160	1	3 $\frac{1}{2}$	1	5 $\frac{3}{4}$	208	1	11 $\frac{1}{2}$	1	8 $\frac{1}{4}$
161	1	10 $\frac{1}{4}$	1	8 $\frac{1}{2}$					
						43	6 $\frac{1}{4}$	42	1 $\frac{1}{4}$

TABLE IV.—COMPARISONS OF CHURNINGS WITH ANALYSES—*continued*.

GUERNSEYS.

No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.		No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.	
	lbs.	ozs.	lbs.	ozs.		lbs.	ozs.	lbs.	ozs.
210	2	4 $\frac{1}{2}$	1	15 $\frac{3}{4}$	220	1	4	1	2 $\frac{3}{4}$
211	1	11	1	11	221	1	10	1	10 $\frac{3}{4}$
213	1	12	1	11 $\frac{1}{2}$	223	1	12	1	10 $\frac{3}{4}$
215	1	13 $\frac{3}{4}$	1	11 $\frac{1}{2}$	224	1	12	1	9 $\frac{3}{4}$
216	1	3 $\frac{1}{4}$	1	7	228	1	0 $\frac{1}{2}$	1	2 $\frac{1}{4}$
217	2	15 $\frac{3}{4}$	2	11 $\frac{1}{2}$	229	1	6 $\frac{1}{2}$	1	5 $\frac{1}{2}$
218	1	8	1	7 $\frac{1}{2}$	233	0	13 $\frac{1}{2}$	0	10 $\frac{3}{4}$
219	1	5 $\frac{1}{2}$	1	2					
						23	8 $\frac{1}{4}$	22	8 $\frac{1}{4}$

RED POLLS.

238	0	13 $\frac{1}{2}$	1	7 $\frac{1}{4}$	261	0	10	1	5 $\frac{1}{4}$
240	1	5 $\frac{3}{4}$	1	7 $\frac{1}{4}$	262	1	11	1	12 $\frac{1}{4}$
242	1	10 $\frac{3}{4}$	2	5 $\frac{3}{4}$	263	0	11 $\frac{1}{2}$	1	7 $\frac{1}{2}$
243	1	2 $\frac{1}{2}$	1	9 $\frac{1}{4}$	266	1	2 $\frac{3}{4}$	1	4 $\frac{1}{2}$
244	1	3	1	8 $\frac{1}{2}$	267	1	8 $\frac{1}{2}$	1	7 $\frac{1}{4}$
245	0	15	1	1 $\frac{1}{4}$	269	0	11	0	12 $\frac{3}{4}$
246	1	7 $\frac{3}{4}$	1	14 $\frac{1}{2}$	270	0	12 $\frac{3}{4}$	0	15
253	2	10	2	10 $\frac{3}{4}$	272	2	4	2	0 $\frac{3}{4}$
255	0	15 $\frac{1}{2}$	1	8 $\frac{1}{2}$	283	1	10	1	5 $\frac{1}{2}$
256	1	4 $\frac{1}{2}$	2	0 $\frac{1}{4}$	285	0	4 $\frac{3}{4}$	0	14 $\frac{3}{4}$
257	1	9	1	7 $\frac{1}{2}$	286	0	14	1	2 $\frac{1}{4}$
260	1	2	1	1 $\frac{1}{2}$					
						28	6 $\frac{1}{2}$	34	6 $\frac{1}{4}$

SOUTH DEVONS.

304	1	3 $\frac{1}{2}$	1	7	308	1	11 $\frac{1}{2}$	1	9 $\frac{1}{4}$
306	1	6	1	9 $\frac{1}{2}$	310	2	5 $\frac{1}{2}$	2	2 $\frac{1}{4}$
307	2	10	2	14 $\frac{3}{4}$		9	4 $\frac{1}{2}$	9	11 $\frac{1}{4}$

DEVONS.

297	1	9	1	15 $\frac{1}{2}$	301	0	14 $\frac{1}{2}$	1	1 $\frac{1}{2}$
298	1	9	1	11	302	2	4 $\frac{1}{2}$	2	3
299	1	10 $\frac{1}{4}$	1	10 $\frac{1}{4}$	303	1	13	1	14 $\frac{1}{2}$
300	1	15	2	4		11	11 $\frac{1}{4}$	12	11 $\frac{1}{4}$

TABLE IV.—COMPARISONS OF CHURNINGS WITH ANALYSES—*continued*.

AYRSHIRES.

No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.		No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.	
	lbs.	ozs.	lbs.	ozs.		lbs.	ozs.	lbs.	ozs.
311	1	5 $\frac{3}{4}$	1	7 $\frac{1}{2}$	329	1	11	1	14
313	1	10	1	10 $\frac{3}{4}$	330	0	15 $\frac{1}{4}$	1	3
314	1	6 $\frac{3}{4}$	1	13 $\frac{1}{4}$	331	1	4 $\frac{1}{2}$	1	7
315	1	8 $\frac{11}{16}$	1	10 $\frac{1}{4}$	332	0	15	1	5 $\frac{1}{4}$
317	1	2 $\frac{3}{4}$	0	15 $\frac{1}{4}$	333	1	1 $\frac{1}{2}$	1	3
318	0	14	0	13 $\frac{1}{2}$	334	2	2 $\frac{1}{2}$	1	15 $\frac{1}{2}$
321	1	3 $\frac{1}{4}$	2	6 $\frac{1}{4}$	335	1	6 $\frac{3}{4}$	1	10 $\frac{1}{2}$
324	2	1 $\frac{3}{4}$	1	14 $\frac{1}{2}$	336	1	5 $\frac{1}{2}$	1	7 $\frac{1}{4}$
325	2	1 $\frac{3}{4}$	2	7 $\frac{1}{2}$	337	1	7	1	7 $\frac{3}{4}$
326	1	2 $\frac{1}{2}$	1	10 $\frac{1}{2}$					
328	1	0 $\frac{1}{2}$	1	2 $\frac{1}{2}$					
						27	14 $\frac{1}{2}$	31	9

KERRIES.

338	1	8	1	7 $\frac{3}{4}$	348	0	11	1	1 $\frac{1}{4}$
339	1	9 $\frac{1}{2}$	1	9 $\frac{1}{4}$	349	0	12	1	1 $\frac{1}{4}$
342	1	2 $\frac{3}{4}$	1	7 $\frac{3}{4}$	353	0	14	0	13 $\frac{1}{2}$
343	1	7 $\frac{1}{2}$	1	8 $\frac{1}{4}$	358	1	4 $\frac{1}{2}$	1	3 $\frac{3}{4}$
344	1	2	1	0 $\frac{1}{2}$	360	0	13	0	13 $\frac{1}{4}$
345	1	6	1	7 $\frac{1}{2}$					
						11	10 $\frac{1}{4}$	13	10 $\frac{1}{4}$

Does not include the Butter and Fat of Cows Nos. 352 and 354 in Catalogue.

DEXTERS.

361	0	14 $\frac{1}{2}$	1	1 $\frac{1}{2}$	364	0	9 $\frac{1}{2}$	0	11 $\frac{1}{4}$
363	1	0 $\frac{1}{2}$	0	15 $\frac{3}{4}$					
						2	8 $\frac{1}{2}$	2	12 $\frac{1}{2}$

BRITISH FRIESIANS.

370	3	0	2	10 $\frac{3}{4}$	402	1	1	1	5 $\frac{3}{4}$
374	1	8 $\frac{1}{2}$	2	2 $\frac{1}{4}$	404	1	12	1	7 $\frac{3}{4}$
375	1	15 $\frac{1}{2}$	1	11 $\frac{3}{4}$	405	0	15 $\frac{1}{4}$	1	7 $\frac{1}{4}$
380	2	13 $\frac{3}{4}$	2	9 $\frac{1}{4}$	407	1	8	2	3 $\frac{1}{2}$
381	2	2 $\frac{3}{4}$	2	8 $\frac{1}{4}$	408	1	7 $\frac{1}{2}$	1	12 $\frac{1}{4}$
383	2	8 $\frac{1}{2}$	2	9 $\frac{1}{2}$	414	1	15 $\frac{1}{4}$	2	3 $\frac{1}{4}$
388	1	12 $\frac{3}{4}$	1	15 $\frac{3}{4}$	415	1	15 $\frac{1}{4}$	2	14 $\frac{1}{2}$
390	1	2 $\frac{1}{4}$	1	6 $\frac{1}{2}$	416	1	3 $\frac{1}{4}$	1	1 $\frac{3}{4}$
392	1	0 $\frac{1}{2}$	2	9 $\frac{1}{2}$	422	0	11 $\frac{1}{4}$	1	1 $\frac{1}{2}$
393	2	1	2	1 $\frac{1}{2}$	437	0	12	1	1
394	1	5 $\frac{1}{2}$	1	1 $\frac{3}{4}$	438	1	7	1	8 $\frac{1}{4}$
396	1	6	1	4 $\frac{1}{4}$					
400	1	5 $\frac{3}{4}$	1	10 $\frac{1}{2}$					
						38	15	44	8

TABLE IV.—COMPARISONS OF CHURNINGS WITH ANALYSES—*continued*.

WELCH BLACKS.

No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.		No. in Catalogue.	Weight of Butter Churned.		Total Fat by Analyses.	
	lbs.	ozs.	lbs.	ozs.		lbs.	ozs.	lbs.	ozs.
442	2	1	2	1 $\frac{1}{4}$	447	1	13	1	11 $\frac{1}{2}$
444	1	6 $\frac{1}{2}$	1	2 $\frac{1}{4}$					
445	2	0 $\frac{1}{2}$	1	12 $\frac{1}{2}$		7	5	6	11 $\frac{1}{2}$

TABLE V.—AVERAGE DIFFERENCES BETWEEN CHURNINGS AND CHEMICAL ANALYSES FROM 1898.

Year	Breed	Churn		Analyses	
		Lbs. Butter		Lbs. Fat	
1898	Shorthorns	...	38.92	...	36.82
1899	"	...	34.34	...	32.46
1900	"	...	35.55	...	37.87
1901	"	...	29.05	...	27.80
1902	"	...	53.48	...	55.91
1903	"	...	30.72	...	35.92
1904	"	...	22.98	...	26.39
1905	"	...	30.89	...	30.58
1906	"	...	31.38	...	33.59
1907	"	...	45.14	...	47.79
1908	"	...	43.74	...	49.78
1909	"	...	35.06	...	35.91
1910	"	...	41.62	...	44.75
1911	"	...	47.79	...	48.00
1912	"	...	61.10	...	63.85
1913	"	...	43.01	...	48.69
1914	"	...	36.87	...	39.14
1915	"	...	32.50	...	40.15
1919	"	...	48.86	...	42.40
1920	"	...	51.25	...	52.57
1921	"	...	94.84	...	112.69
1922	"	...	61.23	...	71.69
1907	Lincolnshire Red Shorthorns	...	12.94	...	12.31
1908	"	"	15.79	"	15.56
1909	"	"	14.06	"	13.48
1910	"	"	13.37	"	13.62
1911	"	"	10.16	"	10.00
1912	"	"	11.47	"	12.00
1913	"	"	9.12	"	8.65
1914	"	"	6.44	"	6.47
1915	"	"	3.29	"	3.16
1919	"	"	7.47	"	7.15
1920	"	"	5.37	"	5.81
1921	"	"	12.77	"	13.01
1922	"	"	15.62	"	14.96
1898	Jerseys	...	29.15	...	27.26
1899	"	...	23.61	...	22.54
1900	"	...	39.75	...	39.32
1901	"	...	33.19	...	31.82
1902	"	...	43.61	...	41.03
1903	"	...	27.04	...	26.41
1904	"	...	22.22	...	22.06
1905	"	...	24.53	...	22.44
1906	"	...	19.56	...	18.71
1907	"	...	22.64	...	—
1908	"	...	22.25	...	—
1909	"	...	37.65	...	35.89
1910	"	...	*30.37	...	30.18
1911	"	...	27.62	...	26.18
1912	"	...	14.39	...	13.39

* Excluding Nos. 142 and 146.

TABLE V.—AVERAGE DIFFERENCES BETWEEN CHURNINGS AND CHEMICAL ANALYSES FROM 1898—*Continued.*

Year	Breed					Churn	Analyses
						Lbs. Butter	Lbs. Fat
1913	Jerseys	...	...	...	...	29.54	*20.90
1914	"	...	...	...	...	17.44	16.14
1915	"	...	...	...	...	16.16	14.67
1919	"	...	...	...	...	37.44	35.18
1920	"	...	...	...	...	25.06	24.55
1921	"	...	...	...	...	29.75	28.50
1922	"	...	...	...	...	43.22	42.05
1898	Guernseys	...	...	...	...	18.07	8.25
1899	"	...	...	...	...	15.90	5.53
1900	"	...	...	...	...	0.84	11.10
1901	"	...	...	...	...	2.46	11.59
1902	"	...	...	...	...	1.23	1.34
1903	"	...	...	...	...	5.34	6.47
1904	"	...	...	...	...	4.89	4.94
1905	"	...	...	...	...	3.42	3.42
1906	"	...	...	...	...	2.41	1.82
1907	"	...	...	...	...	3.54	3.22
1908	"	...	...	...	...	3.69	3.52
1909	"	...	...	...	...	3.20	3.52
1910	"	...	...	...	...	2.44	2.81
1911	"	...	...	...	...	.87	1.50
1912	"	...	...	...	...	2.31	2.96
1913	"	...	...	...	...	†8.48	7.59
1914	"	...	...	...	...	†4.96	5.28
1915	"	...	...	...	...	10.31	11.08
1919	"	...	...	...	...	23.72	23.66
1920	"	...	...	...	...	21.23	21.62
1921	"	...	...	...	...	28.94	28.87
1922	"	...	...	...	...	22.46	23.14
1898	Red Polls	...	...	...	...	5.04	5.56
1899	"	...	...	...	...	8.48	8.33
1900	"	...	...	...	...	8.98	9.81
1901	"	...	...	...	...	3.07	2.88
1902	"	...	...	...	...	8.36	8.00
1903	"	...	...	...	...	5.01	6.95
1904	"	...	...	...	...	5.39	6.00
1905	"	...	...	...	...	13.42	14.53
1906	"	...	...	...	...	11.39	14.50
1907	"	...	...	...	...	12.53	16.08
1908	"	...	...	...	...	3.21	4.06
1909	"	...	...	...	...	5.09	5.71
1910	"	...	...	...	...	5.12	6.25
1911	"	...	...	...	...	.94	1.08
1912	"	...	...	...	...	1.00	1.81
1919	"	...	...	...	...	16.71	18.83
1920	"	...	...	...	...	15.98	18.89
1921	"	...	...	...	...	27.06	29.98
1922	"	...	...	...	...	28.33	35.61

* Does not include the fat of Jersey Heifers competing in the Tests.

† Does not include the fat of Guernsey Heifers competing in the Tests.

TABLE V.—AVERAGE DIFFERENCES BETWEEN CHURNINGS AND
CHEMICAL ANALYSES FROM 1898—*Continued.*

Year	Breed	Churn	Analyses
		Lbs. Butter	Lbs. Fat
1909	South Devons	6.89	7.03
1910	"	12.03	13.06
1911	"	2.64	3.25
1912	"	7.92	8.39
1913	"	3.01	3.75
1914	"	10.50	11.00
1915	"	3.22	4.16
1921	"	9.46	10.50
1922	"	9.25	9.71
1919	Devons	7.92	8.10
1920	"	3.94	3.59
1921	"	11.58	12.73
1922	"	11.69	12.72
1910	Ayrshires	1.94	1.75
1912	"	5.37	5.89
1921	"	4.62	4.69
1922	"	27.85	31.52
1907	Kerries	3.40	3.19
1908	Kerries and Dexters	6.89	7.09
1909	Kerries	2.75	2.64
1911	"	1.21	.96
1913	"	5.94	6.10
1919	"	4.66	4.64
1920	"	11.50	11.48
1921	"	18.78	21.96
1922	"	14.14	13.57
1919	Dexters	5.77	5.58
1920	"	3.96	3.84
1921	"	2.06	2.5
1922	"	2.52	2.77
1914	British Friesians... ..	1.20	1.69
1915	"	3.50	4.00
1919	"	3.31	3.33
1920	"	27.10	29.06
1921	"	21.81	25.18
1922	"	38.87	44.50
1922	Welsh Black	7.30	6.70

BUTTER TESTS—SHORTHORNS.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Lactation	Total Number of Points	Awards			
							Morn.	Even.	Total			Colour	Quality						
			lbs.				lbs.	ozs.	lbs.	ozs.	lbs.								
1	The Duke of Westminster, G.C.V.O., D.S.O.	Cherry Bud 6th	1418	Jan. 5, 1915	1922. June 28	110	24	0 19	13 43	13 2	1 20	96	Good	33	50	7 00	40 50	4th Prize	
2	The Duke of Westminster, G.C.V.O., D.S.O.	Illington Lass 2nd	1104	Aug. 1, 1914	Aug. 12	65	29	0 23	13 52	13 1	9	33	85	Fair	25	00	2 50	27 50	
4	G.C.V.O., D.S.O. Sir Gilbert A. H. Wills, Bart., M.P.	Sweet Clara 2nd	1474	Oct. 25, 1915	Sept. 7	39	22	6 21	13 44	3 1	3 36	51	Pale	Only	19	50	—	19 50	
7	J. H. Robinson	Benedict's Lucy...	1516	Feb. 2, 1915	Sept. 30	16	23	14 11	13 35	11 1	1 33	35	Good	Good	17	25	—	17 25	
8	D. Aldridge	Merry Maid 5th...	1357	May 3, 1917	Sept. 21	25	35	10 26	11 62	5 2	1	30	24	Fair	Good	33	00	—	33 00
9	D. Aldridge	Vain Lucy 5th ...	1337	Feb. 28, 1913	Sept. 15	31	30	8 24	10 55	2 1	1 31	86	Good	Good	27	75	—	27 75	
11	D. Aldridge	Border Duchess 3rd	1332	Nov. 11, 1916	Sept. 26	20	27	5 26	0 53	5 1	10	32	90	Good	Good	26	00	—	26 00
13	A. R. Fish	Spency Rose 9th	1324	Jan. 6, 1914	Sept. 26	20	28	6 25	6 53	12 1	8	35	83	Good	Good	24	00	—	24 00
14	A. R. Fish	Comebank Johnby	1190	May 9, 1917	Sept. 19	27	23	13 24	3 48	0 1	2 41	37	Good	Good	18	75	—	18 75	
15	A. R. Fish	Princess May ...	1402	Oct. 13, 1916	Aug. 31	46	23	8 21	3 44	11 1	2 38	53	Good	Good	18	75	—	18 75	
16	Capt. Hon. E. A. Fitzroy, M.P.	Orsett Telluria 2nd	1358	Mar. 22, 1916	Sept. 6	40	25	13 22	8 48	5 1	7	33	54	Good	Soft	23	00	—	23 00

BUTTER TESTS—SHORTHORNS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz. lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards
							Morn.	Even.	Total			Colour	Quality				
53	A. Palmer ...	Frilly Duchess ...	1384	Feb. 7, 1919	1922. Aug. 10	67	19	11	17	637	11	13	34-00	Fair	17-50	2-70	20-20
54	Eustace A. Smith	Longhills Melody	1172	Sept. 1, 1918	Sept. 17	29	34	3	26	060	30	14	66-76	Fair	14-50	—	14-50
56	W. L. Lea ...	Grendon Beatrice	1392	Oct. 4, 1917	Sept. 23	29	24	6	21	1346	31	8	50-18	Pale	24-50	—	24-50
57	The Duke of Westminster, G.C.V.O., D.S.O. G. B. Bates ...	Bare Rosette ...	1059	Oct. 16, 1919	Aug. 24	53	21	3	17	638	91	5	28-77	Good	21-50	1-30	22-80
82	Beaumanor Princess G.C.V.O., D.S.O. G. B. Bates ...	Beaumanor Princess	1380	Dec. 12, 1919	Sept. 9	37	16	3	12	1429	10	14	58-98	Pale	14-75	—	14-75
84	The Earl of Derby, K.G. G. B. Bates ...	X6, 472 ...	1260	—	Sept. 20	26	29	8	24	353	111	10	32-34 V. Pale	Fair	26-75	—	26-75
85	J. L. Shirley ...	Ruby ...	1270	—	Sept. 6	40	29	0	22	1051	101	7	35-84	Pale	23-00	—	23-00
87	J. L. Shirley ...	Maisy 2nd ...	1446	—	Sept. 6	40	29	3	24	1354	01	8	36-00	Fair	24-00	—	24-00
88	J. L. Shirley ...	Charming Lass ...	1340	—	Sept. 15	31	30	2	26	1356	151	9	37-96 V. Pale	Fair	25-00	—	25-00
93	N. Hardman ...	Dolly ...	1224	1917	Sept. 22	24	27	1	24	252	02	2	24-52	Good	34-00	—	34-00 H.C.
97	W. H. Nelson ...	Lady Wilson ...	1318	1916	Sept. 27	19	31	14	26	057	142	0	28-93	Good	32-00	—	32-00
98	W. H. Nelson ...	Lady Danson ...	1253	1916	Oct. 3	13	27	14	23	1151	91	15	26-57	Good	31-00	—	31-00

BUTTER TESTS—SHORTHORNS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Milks	Milk Yield		Butter Yield	Ratio, viz. lbs. Butter to lbs. Milk	Colour and Quality of Butter	No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards.
							Morn.	Even.							
							lbs. 025	lbs. 025	lbs. 025						
99	Olympia Agricultural Co., Ltd.	Muriel	1175	—	1922, Sept. 18	28	29	228	257	42	21	26.62	Good	Fair	31.50 H.C.
108	J. L. Shirley	Pride	1052	1920	Sept. 1	45	22	319	1442	11	4	33.48	V. Pale	Good	20.00 50.20.50
110	A. Stapleton & Sons, Ltd.	May Queen	1216	Sept. 21, 1919	Aug. 22	55	14	013	827	80	15	28.94	Pale	Fair	15.25 1.50.16.75
111	A. Stapleton & Sons, Ltd.	Elmscott	1028	Nov. 15, 1919	Aug. 28	40	18	1116	334	140	14	38.74	V. Pale	Fair	14.50 40.15.40
112	Lt.-Col. Sir A. G. Weigall, K.C.M.G.	Buttercup	1176	Feb. 20, 1916	Sept. 7	30	23	1131	535	01	7	23.80	Pale	Fair	23.50 23.50
113	Lt.-Col. Sir A. G. Weigall, K.C.M.G.	Langford Queen	1310	Nov. —, 1915	Oct. 1	15	29	828	057	82	6	23.85	Pale	Fair	38.75 38.75
115	C. E. Scorer	Bracebridge No. 4th	1096	Dec. 16, 1916	Sept. 26	20	32	627	359	92	5	25.31	Good	Good	37.75 37.75
116	John Evens & Son	Burton Red Rose	1447	Dec. 5, 1917	Sept. 26	20	33	024	1057	103	01	19.14	V. G.	Good	48.25 48.25 1st Prize.
117	John Evens & Son	Burton Cherry	1240	Sept. 23, 1917	Sept. 9	37	27	627	854	142	4	24.38	V. G.	Good	36.00 36.00 H.C.
119	John Evens & Son	Burton Ruby	1326	Sept. 7, 1915	Sept. 4	42	35	631	666	122	12	24.43	V. G.	Good	44.00 20.41.20
121	Stanley Blundell	Bendish Nancy	1346	Aug. 21, 1916	Aug. 29	48	31	326	357	61	6	41.87	Good	Good	22.00 80.22.80 3rd Prize

BUTTER TESTS—SHORTHORNS—Continued.

No. in Catalogue.	Name of Animal.	CHURNING—TIME AND TEMPERATURE.				Temperature		Buttermilk, when churning finished
		Time		Duration of Churning	Dairy	Cream and Churn	Degrees	
		Churning began	Churning finished					
				Minutes	Degrees	Degrees	Degrees	
1	Cherry Bud 6th	9 20 a.m.	9 37 a.m.	17	63	52	60	
2	Illington Lass 2nd...	9 22 "	9 52 "	30	63	52	60	
4	Sweet Clara 2nd	9 19 "	9 39 "	20	63	52	60	
7	Benedict's Lucy	9 17 "	9 34 "	17	63	52	60	
8	Merry Maid 5th	9 20 "	9 55 "	30	63	52	60	
9	Vain Lucy 5th	9 24 "	9 58 "	34	63.5	52	58	
11	Border Duchess 3rd	9 30 "	10 10 "	40	64	52	57	
13	Spency Rose 9th	9 27 "	10 12 "	45	64	52	61	
14	Comebank Johnny	9 26 "	10 11 "	45	64	52	58	
15	Princess May	9 28 "	9 53 "	25	64	52	60	
16	Orsett Telluria 2nd	9 32 "	10 4 "	32	64	52	58	
19	Cockermouth Purity...	9 31 "	9 52 "	21	64	52	60	
21	Waterbrook Rose	9 35 "	9 50 "	15	64	52	60	
25	Strawberry	10 25 "	10 58 "	33	65	52	59	
27	Orford Buttercup 5th	9 39 "	10 4 "	25	64	52	60	
30	Babraham Convolutus	11 4 "	11 24 "	20	64	52	59	
31	Robina	9 45 "	10 10 "	25	64	52	58	
32	Eaton Dolphinlee Waterloo	10 13 "	10 30 "	17	64	52	56	
38	Histon Lady Barrington 2nd	9 55 "	10 10 "	15	64	52	56	
43	Melody 40th	10 8 "	10 35 "	27	64	52	60	
47	Thornby Ringlet 3rd	10 16 "	11 25 "	69	64	52	61	
49	Thurnham Barrington 2nd	11 1 "	11 57 "	56	65	52	63	
52	Leazow Seraphina 9th	10 38 "	11 1 "	23	65	52	58	
53	Frilly Duchess	10 5 "	10 30 "	25	64	52	61	

BUTTER TESTS—SHOETHORNS—Continued.

No. in Catalogue.	Name of Animal.	CHURNING—TIME AND TEMPERATURE.				
		Time		Buttermilk, when churning finished	Temperature.	
		Churning began	Churning finished		Dairy	Cream and churn
				Minutes	Degrees	Degrees
54	Longhills Melody ...	10 32 a.m.	12 10 a.m.	98	65	52
56	Grendon Beatrice ...	10 43 "	11 14 "	31	65	52
57	Bare Rossette ...	11 18 "	11 34 "	16	65	52
82	Beau Manor Princess ...	11 9 "	11 22 "	13	64	52
84	X6, 472 ...	10 56 "	11 14 "	18	65	52
85	Ruby ...	11 11 "	11 40 "	29	61	52
87	Maisey 2nd ...	11 18 "	12 19 p.m.	63	64	52
88	Charming Lass ...	11 11 "	11 44 a.m.	33	64	52
93	Dolly ...	11 25 "	11 41 "	16	64	52
97	Lady Wilson ...	12 1 p.m.	12 56 p.m.	55	64	52
98	Lady-Danson ...	11 18 a.m.	11 32 a.m.	14	64	52
99	Muriel ...	11 30 "	12 30 p.m.	60	52	52
108	Pride ...	11 36 "	12 40 "	64	64	52
110	May Queen ...	11 32 "	11 48 a.m.	16	64	52
111	Elmscott Buttermilk ...	11 22 "	11 52 "	30	64	52
112	Petwood Primrose... ..	11 50 "	12 18 p.m.	28	64	52
113	Langford Queen 4th ...	11 47 "	12 30 "	43	64	52
115	Bracebridge No. 60 ...	11 45 "	11 59 a.m.	14	64	52
116	Burton Red Rose 4th ...	12 36 p.m.	12 47 p.m.	11	64	52
117	Burton Cherry 4th ...	2 47 "	3 4 "	17	66	52
119	Burton Ruby Spot 14th ...	12 8 "	12 23 "	15	64	52
121	Bendish Nancy ...	11 57 a.m.	12 16 "	19	64	52

BUTTER TESTS—JERSEYS.

The Dairy Show Butter Tests of 1922.

231

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Milk	Milk Yield in 24 hrs.	Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour	Colour and Quality of Butter	No. of Points for Butter	No. of Points for Lactation.	Total Number of Points	Awards
131	Sir G. Stanley White, Bart.	Dock	lbs. 811	Dec. 7, 1912	1922, July 17	91	lbs ozs 28 0 1 4½	21.85	Good	V. G.	20.50	5.10	25.60		
136	E. A. Strauss ...	Jersey Beauty ...	710	May 25, 1918	Aug. 31	46	27 0 1 11½	15.56	V. G.	V. G.	27.75	.60	28.35		
137	E. A. Strauss ...	Kingston Fairy ...	818	June 12, 1919	May 3	166	25 15 1 5	19.76	Ex.	Fair	21.00	12.00	33.00		Certificate of Merit
138	Col. Gisborne, C.M.G.	Somerley Ceres ...	724	May 17, 1919	July 29	70	27 2 1 7½	18.27	Pale	Good	23.75	3.90	27.65		
143	Brig.-Gen. Wigan, C.B., C.M.G., D.S.O.	Mitylene	1066	Dec. 8, 1915	July 2	106	34 15 1 2½	30.21	Pale	Poor	18.50	5.00	23.50		
147	R. Bruce Ward ...	Piquant	804	April 21, 1919	May 15	154	35 4 1 15	18.19	Good	Good	31.00	11.40	42.40		1st Prize
152	W. V. Doughty ...	Choir Mistress ...	838	July 29, 1919	May 26	143	23 15 1 5	18.23	Good	Good	21.00	8.00	29.00		
153	W. V. Doughty ...	Rochette Rose ...	743	July 7, 1918	July 14	94	29 2 1 6½	20.71	V. G.	Good	22.50	5.40	27.90		
154	Mrs. Evelyn ...	Dahlia 4th	806	Oct. 25, 1912	June 4	134	48 4 1 12	27.57	V. G.	Good	28.00	8.00	36.00		Certificate of Merit
156	J. Pierpont Morgan	Willia Kingsway 2nd	844	Jan. 5, 1919	July 13	95	36 0 1 8½	23.51	Pale	Good	24.50	5.50	30.00		Certificate of Merit
158	Major Warren ...	Rapkyms Bounty	947	Aug. 20, 1917	May 27	142	28 0 1 5½	21.08	Good	Good	21.25	10.20	31.45		
159	G. H. Lindsey-Renton	Wotton Alexandra	804	April 14, 1918	Aug. 26	51	47 13 2 1½	23.00	Pale	V. G.	33.25	1.10	34.35		Certificate of Merit
160	George Cross ...	Yellow Wort ...	814	Feb. 20, 1919	May 7	162	27 5 1 3½	22.70	Ex.	V. G.	19.25	12.00	31.25		Certificate of Merit

BUTTER TESTS—JERSEYS—Continued.

No. in Catalogue	Name of Animal	CHURNING—TIME AND TEMPERATURE.					
		Time		Temperature			
		Churning began	Churning finished	Duration of Churning Minutes	Dairy Degrees	Cream and Churn Degrees	Buttermilk, when churning finished Degrees
131	Dock	8 53 a.m.	9 15 a.m.	22	62	52	56
136	Jersey Beauty	8 55 "	9 18 "	23	62	52	56
137	Kington Fairy	9 3 "	9 25 "	22	62	52	58
138	Somerley Ceres	9 7 "	9 26 "	19	62	52	56
143	Mitylene	9 13 "	9 43 "	30	62	52	58
147	Piquant	9 23 "	9 44 "	21	63	52	58
152	Choir Mistress	9 40 "	10 5 "	25	64	52	58
153	Rochette Rose	9 52 "	10 25 "	33	64	52	57
154	Dahlia 4th	10 0 "	10 32 "	32	65	52	57
156	Willie Kingsway 2nd	10 20 "	10 42 "	22	65	52	57
158	Rapkyns Bounty	10 22 "	10 58 "	36	65	52	60
159	Wotton Alexandra	10 30 "	11 20 "	50	65	52	57
160	Yellow Wort	10 55 "	11 35 "	40	65	52	57
161	Naanah	10 52 "	11 10 "	18	65	52	58
162	You'll Do Orange	11 25 "	11 42 "	17	65	52	56
163	Tidy White	11 37 "	11 50 "	13	65	52	58
164	Lily	11 39 "	12 5 p.m.	26	65	52	58
165	Dewdrop	12 13 p.m.	12 43 "	30	64	52	56
166	Meadow Vale Pride	11 51 a.m.	12 36 "	45	65	52	58
168	Pink Pill 2nd	11 55 "	12 23 "	28	64	52	57
169	Nimrod's Dinah 4th	12 19 p.m.	12 55 "	36	64	52	58
170	Heather of Hollywood	12 32 "	1 5 "	33	64	52	60
177	Wotton Boveau	2 40 "	3 0 "	20	69	52	56
178	Snow Bird	2 44 "	3 19 "	35	69	52	58
179	Thyme	2 46 "	3 11 "	25	69	52	58
190	Duchess of Carita 4th	2 55 "	3 21 "	26	69	52	56
208	Britannia's Surprise	2 57 "	3 25 "	28	69	52	58

BUTTER TESTS—RED POLLS.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour	Quality of Butter	No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards
							Morn.	Even.	Total								
			lbs.				lbs	ozs	lbs	ozs	lbs	ozs					
238	Lord Hastings ...	Melton Mavis ...	1180	Feb. 6, 1916	1922.												
					Aug. 28	49	21	5	19	0	40	5	0	13½	47	98	(Good)
240	Lt.-Col. Sir Merrick R. Burrell, Bart., C.B.E.	Knepp Cowslip 3rd	1252	Jan. 17, 1917	Aug. 30	47	23	8	19	2	42	10	1	5½	31	57	(Good)
242	Lt.-Col. Sir Merrick R. Burrell, Bart., C.B.E.	Knepp Primrose 4th	1302	Dec. 20, 1916	Sept. 26	20	26	8	24	0	50	8	1	10½	30	60	(Good)
243	Lt.-Col. W. Elwes	Tuesnoad Jennifer	1213	July 15, 1917	Sept. 25	21	22	6	23	3	45	9	1	2½	39	61	Pale
244	Capt. J. O. Sherrard	Framlingham Red 1044	1044	Nov. 24, 1915	Sept. 12	34	37	3	28	0	65	3	1	3	55	23	(Good)
245	D. Trembath ...	Tendring Floss 1342	1342	Oct. 1, 1916	April 6	193	13	8	12	0	25	8	0	15	27	12	Fair
246	Owen H. Smith	Harefield 1079	1079	June 16, 1916	Sept. 12	34	25	8	21	0	46	8	1	7½	31	41	(Good)
253	M. C. Pilkington...	Harefield Ruth ... 1124	1124	Feb. 18, 1916	Sept. 11	35	26	2	24	6	50	8	2	10	10	27	(Good)
255	Mrs. R. M. Foot	Easton Painted Lady 1124	1124	Oct. 9, 1916	Sept. 19	27	30	0	26	0	56	0	0	15½	57	73	Pale
256	J. B. Dimmock ...	Gressenhall Wild Girl 924	924	Oct 4, 1916	June 30	108	29	11	22	5	52	0	1	4½	40	62	Pale
257	E. Barracough ...	Sudbourne Nora 1038	1038	Dec. 9, 1913	Aug. 29	48	22	10	19	6	42	0	1	9	26	92	V. Pale
																	Fair

1st Prize

BUTTER TESTS—RED POLLS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Milks	Milk Yield			Butter Yield	Ratio, viz. lbs. Milk to lbs. Butter	Colour and Quality of Butter.		No. of Points for Butter	No. of Points for Lactation	Total Number of	Awards					
							Morn. lbs. ozs.	Even. lbs. ozs.	Total lbs. ozs.			Colour	Quality									
			lbs.		1922.																	
260	Lord Hastings ...	Melton Minaret ...	950	Nov. 28, 1918	Aug. 26	51	19	6	17	3	36	9	1	2	32	64	Good	18-00	1-10	19-10		
261	Lt.-Col. Sir Merrick R. Burrell, Bart. C.B.E.	Knepp Euphemia 2nd	1239	Aug. 14, 1918	Aug. 28	49	21	8	17	3	38	11	0	10	62	40	Good	10-00	90	10-90		
262	Sir A. E. Bowen, Bart.	Gressenhall	1156	Oct. 24, 1917	Aug. 8	69	25	2	18	0	43	2	1	11	25	51	Good	27-00	2-90	29-90		
263	Mrs. R. M. Foot ...	Margate Harefield Dawn ...	870	Nov. 8, 1917	Aug. 28	49	25	10	19	8	45	2	0	11	62	06	Fair	11-50	90	12-40		
266	J. B. Dimmock ...	Shotford Star Duchess 121st	1332	Feb. 26, 1918	July 17	91	23	0	18	14	41	14	1	2	36	23	Pale	18-50	5-10	23-60		
267	A. Carlyle Smith	Ashmoor Patricia	1105	Aug. 7, 1918	July 4	104	21	5	18	0	39	5	1	8	25	09	V. Pale	24-50	5-00	29-50		
269	Maj. J. A. Morrison, D.S.O.	Basildon Fairy ...	1122	Dec. 25, 1918	Aug. 17	60	20	1	13	10	34	5	0	11	49	72	Pale	11-00	2-00	13-00		
270	Maj. J. A. Morrison, D.S.O.	Basildon Rosalind	980	Feb. 20, 1918	Sept. 12	44	26	10	11	13	38	7	0	12	48	65	Pale	12-75	40	13-15		
272	Felix W. Leach ...	Meddler Merrythought	1115	Sept. —, 1918	Aug. 21	56	29	13	25	3	55	0	2	4	24	44	V. G.	V. G.	36-00	1-60	37-60	2nd Prize
283	Capt. F. W. Winterbotham	Hutton Ruth ...	1217	Aug. 14, 1919	Aug. 7	70	17	1	16	2	33	13	1	10	20	87	Pale	26-00	3-00	29-00		
285	W. Woodgate ...	Woolpit Bess ...	1071	May 16, 1920	Aug. 6	71	10	8	10	5	20	13	0	4	71	75	Pale	4-75	4-75	7-85		
286	W. Woodgate ...	Framlingham Rose Girl	890	April 10, 1920	Aug. 29	48	12	8	13	0	25	8	0	14	29	31	Pale	14-00	80	14-80		

2nd Prize

BUTTER TESTS—RED POLLS—Continued.

No. in Catalogue	Name of Animal	CHURNING—TIME AND TEMPERATURE				Dairy	Temperature		Buttermilk, when churning finished
		Time		Duration of Churning	Degrees		Cream and Churn	Degrees	
		Churning began	Churning finished						
238	Melton Mavis	2 50 p.m.	3 20 p.m.	30	66	52	60		
240	Knepp Cowslip 3rd	2 48 "	3 8 "	20	66	52	56		
242	Knepp Primrose 4th	2 55 "	3 28 "	33	66	52	58		
243	Tuesnoad Jennifer	2 57 "	3 53 "	56	66	52	58		
244	Framlingham Red Rosset	2 56 "	3 49 "	53	66	52	61		
245	Tendring Floss 29th	2 55 "	3 20 "	25	66	52	60		
246	Harefield Fillpail 1st	3 10 "	3 35 "	25	66	52	58		
253	Harefield Ruth	3 33 "	4 22 "	49	66	52	60		
255	Easton Painted Lady	3 52 "	4 14 "	22	66	52	60		
256	Gressenhall Wild Girl	3 12 "	4 27 "	75	66	52	62		
257	Sudbourne Nora	3 9 "	3 29 "	20	66	52	60		
260	Melton Minaret	3 19 "	3 55 "	36	66	52	56		
261	Knepp Euphemia 2nd	3 23 "	4 12 "	49	66	52	55		
262	Gressenhall Margate	3 25 "	3 41 "	16	66	52	61		
263	Harefield Dawn	3 26 "	3 42 "	16	66	52	67		
266	Shotford Star Duchess 121st	3 33 "	4 45 "	72	66	52	62		
267	Ashmoor Patricia	3 30 "	3 57 "	17	66	52	60		
269	Basildon Fairy	3 50 "	4 18 "	28	66	52	58		
270	Basildon Rosalind	5 42 "	5 26 "	44	62	52	58		
272	Meddler Merrythought	6 55 "	7 17 "	22	63	52	56		
283	Hutton Ruth	6 59 "	7 58 "	59	64	52	58		
285	Woolpit Bess	7 7 "	7 26 "	19	64	52	60		
286	Framlingham Rose Girl	5 55 "	6 6 "	11	62	52	54		

BUTTER TESTS—OTHER BREEDS.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last calf	No. of Days in Milking	Milk Yield			Butter Yield	Ratio, viz. lbs Butter to lbs Milk	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards.									
							Milk Yield					Colour	Quality													
							Morn.	Even.	Total																	
			lbs.				lbs.	ozs.	lbs.	ozs.																
210	O. Portman	Gipsy of Tregomming	977	Mar. 17, 1917	1922. Aug. 28	49	23	13	20	2	43	15	2	4	1	19	27	V. G.	V. G.	36	50	90	37	40	£2 Prize	
211	J. B. Body	Lynchmere Rosy of Mauxmarquis 4th	1066	June 25, 1916	Sept. 18	28	19	2	16	8	35	10	1	11	21	07	V. G.	V. G.	27	00	—	—	27	00	—	—
213	Mrs. R. C. Bainbridge	Trequan Maggie 3rd	1097	Feb. 1, 1915	July 21	87	21	0	15	14	36	14	1	12	21	00	V. G.	V. G.	28	00	4	70	32	70	H.C.	—
215	A. Chester Beatty	Masher Girl of the Marais	946	Feb. 8, 1916	Oct. 2	14	16	3	12	2	28	5	1	13	25	73	V. G.	V. G.	17	75	—	—	17	75	—	—
216	A. Chester Beatty	Queen of the Haut Pavé	902	April 24, 1916	Sept. 30	16	18	5	13	3	31	8	1	31	20	47	V. G.	V. G.	19	25	—	—	19	25	—	—
217	A. M. Monteath...	Polly 2nd of Hillside	880	July 28, 1914	Sept. 12	34	30	13	23	14	54	11	2	15	17	34	V. G.	V. G.	47	75	—	—	47	75	£3 Prize	—
218	Sir James Remnant, Bt., M.P.	King's Queen Caradoc	1076	Oct. 5, 1918	Sept. 27	19	16	14	15	2	32	0	1	8	21	33	V. G.	V. G.	24	00	—	—	24	00	—	—
219	W. F. Trumper	Dahlia Polly 2nd	934	April 7, 1918	July 4	104	16	3	13	5	29	8	1	5	122	02	V. G.	V. G.	21	50	6	40	27	90	H.C.	—
220	A. Thomas Loyd, M.P.	Cloe de la Cloture	1050	July 16, 1918	May 4	165	12	8	9	14	22	6	1	4	17	89	Good	V. G.	20	00	12	00	32	00	H.C.	—
221	A. Thomas Loyd, M.P.	Christines Duchess	991	May 30, 1919	May 19	150	14	3	10	5	24	8	1	10	15	00	Good	V. G.	26	00	11	00	37	00	V.H.C.	—
223	J. B. Body	Lynchmere Rosy	946	Aug. 12, 1918	Aug. 23	54	17	13	14	10	32	7	1	12	18	53	V. G.	V. G.	28	00	1	40	29	40	H.C.	—
224	Mrs. R. C. Bainbridge	Mawgan Rose	1006	Sept. 1, 1917	Aug. 16	61	18	13	14	3	33	0	1	12	18	85	V. G.	V. G.	28	00	2	10	30	10	H.C.	—

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Milk			Milk Yield			Butter Yield Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards						
						Morn. lbs ozs.	Even. lbs ozs.	Total lbs ozs.	Colour	Quality														
228	Viscount Astor ...	Westfield Meadow Sweet	986	May 28, 1920	1922.	—	13	11	11	3	24	14	1	0	23	43	Pale	Fair	16	50	—	16	50	
229	Sir J. Rennant, Bart., M.P.	Emblem's Bluebell	770	June 7, 1920	Sept. 8	38	15	13	15	0	30	13	1	6	22	00	Good	Good	22	50	—	22	50	
233	W. F. Trumper ...	Lily's Blonde ...	701	Feb. 1, 1920	Oct. 1	15	11	10	10	0	21	10	0	13	25	73	V. G.	V. G.	13	50	—	13	50	
297	W. G. Busk ...	Stratton Tottie 5th	1374	Feb. 2, 1911	Aug. 29	48	26	11	20	14	47	9	1	9	30	45	V. G.	G. G.	25	00	80	25	80	
298	W. G. Busk ...	Barrowfield Rose	1218	Jan. —, 1915	Oct. 2	14	19	14	16	8	36	6	1	9	23	31	Good	Good	25	00	—	25	00	
299	N. D. Lupton ...	Charm ...	978	1918	Sept. 6	40	26	3	22	3	48	6	1	10	29	67	Good	Good	20	25	—	20	25	
300	N. D. Lupton ...	Wynford Molly ...	1243	Jan. —, 1913	Sept. 4	42	34	2	28	5	62	7	1	15	32	13	V. G.	Fair	31	00	20	31	20	
301	J. H. Chick ...	Wynford Pill ...	1332	July 23, 1913	July 26	15	53	13	11	9	6	23	10	14	25	12	Good	Good	14	50	11	50	20	00
302	J. H. Chick ...	Wynford Laburnam	1276	Dec. 23, 1915	Sept. 25	21	28	2	22	2	50	4	2	4	22	03	Good	Good	36	50	—	36	50	
303	W. D. Chick ...	Lovely 4th ...	1172	May 5, 1918	Oct. 1	15	24	10	23	5	47	15	1	13	26	48	Good	Good	29	00	—	29	00	
304	W. L. Hosking & Sons	Fentongollan Buttercup	—	Mar. 31, 1917	July 22	86	16	13	13	13	30	10	1	3	25	30	V. G.	V. G.	19	50	—	19	50	
306	W. L. Hosking & Sons	Fentongollan Stella	—	April 28, 1917	July 19	89	20	6	17	3	37	9	1	6	27	41	V. G.	Soft	22	00	4	90	20	90

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of Last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz. lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of	Awards						
							Milk Yield					Colour	Quality										
							Morn.	Even.	Total														
			lbs.			lbs	ozs	lbs	ozs	lbs													
307	W. Hunt ...	Netton Lily	1699	Mar. 1, 1914	1922. Sept. 18	28	32	11	27	6	00	12	10	22	93	Good	Good	42·00	—	42·00	£3 Prize		
308	W. Hunt ...	Pinkie	1352	Feb. 10, 1917	Sept. 26	20	25	6	20	6	45	12	11	11	26	91	V. G.	V. G.	27·50	—	27·50		
310	Geo. Banbury ...	Milkway	1562	Dec. 30, 1917	Aug. 24	53	26	5	22	13	49	22	5	1	20	99	V. G.	V. G.	37·50	1·30	38·80	£2 Prize	
311	Mrs. H. Craufurd	Auchenbrain Princess 5th	936	May 31, 1916	Sept. 30	16	23	0	23	13	51	13	1	5	1	37	87	V. G.	V. G.	21·75	—	21·75	
313	Major Henry Keswick	Cowhill Mirrie 6th	1155	Nov. 7, 1916	Sept. 26	20	24	0	20	5	44	5	1	10	27	35	V. G.	V. G.	26·00	—	26·00		
314	Major Henry Keswick	Campbelton Stanley 7th	1130	Mar. —, 1915	Sept. 20	26	27	6	22	13	50	3	1	6	1	35	58	Pale	Good	22·75	—	22·75	
315	W. Murdoch ...	Bunton Hill	1002	Aug. —, 1916	Sept. 23	23	27	0	24	2	51	2	1	8	1	33	41	Good	Good	24·50	—	24·50	
317	Lt.-Col. R. E. Cecil	Lady Jean Auchenbrain Yellow Kate 20th	1055	April 30, 1919	May 25	144	11	15	9	11	21	0	1	2	1	18	10	Good	Good	18·75	10·40	29·15	H.C.
318	Lt.-Col. R. E. Cecil	Douglashall Nessie 2nd	1022	Feb. 7, 1919	Aug. 1	76	13	2	10	32	3	50	14	26	79	Good	Good	14·00	3·60	17·60			
321	J. S. Murray ...	Carston Helen	1172	Mar. 7, 1918	Oct. 3	13	22	1	21	10	44	5	1	3	1	37	23	V. G.	Good	19·25	—	19·25	
324	J. Cochrane ...	Byrehom Viper	1191	Jan. 3, 1918	Aug. 28	49	23	2	28	5	67	7	2	1	1	27	35	V. G.	Good	33·75	·90	34·65	£3 Prize
325	A. Y. Allan	Atkenbar Mabel 2nd	984	Sept. 7, 1917	Oct. 2	14	28	13	22	13	51	10	2	1	24	53	V. G.	V. G.	33·75	—	33·75	H.C.	

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of Last Calf	No of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., Buttr to Milk	Colour	Colour and Quality of Butter	No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards
			Lbs.				Morn.	Even.	Total	Lbs. ozs.	Lbs. ozs.						
326	A. W. Montgomerie	Brownie ...	1100	1915	—	1922.	27	3 23	10 50	13 1	22 44	18	Good	18 50	—	18 50	
328	Mrs. H. Craufurd	Dunlop Barnmaid	1004	Nov. 30, 1919	Sept. 10	—	36 20	14 17	3 38	1 1	0 1	36 95	Pale	Good	16 50	—	16 50
329	W. Murdoch	Buntonhill Eunice	973	Oct. 26, 1919	Oct. 2	—	14 22	5 21	6 43	11 1	11	25 85	V.G.	Soft	27 00	—	H.C.
330	A. & A. Kirkpatrick	Barr Daistrymaid...	1138	Jan. 25, 1920	Sept. 19	—	27 16	2 12	14 29	0 0	15	30 52	Good	Good	15 25	—	15 25
331	J. Caldwell	Moorfield Dolly	961	Nov. 18, 1919	Sept. 17	—	19 15	5 15	6 30	11 1	4 2	23 97	Good	Good	20 50	—	20 50
332	Major C. R. Dudgeon	Cargen Holm	890	Oct. 15, 1919	Aug. 2	—	75 20	10 15	8 36	2 0	15	38 40	Good	Good	15 00	3 50	18 50
333	Major C. R. Dudgeon	Proud Lady 7th Cargen Holm	922	Oct. 20, 1919	Aug. 4	—	73 19	13 16	5 36	2 1	1 2	33 14	Good	Good	17 50	3 30	20 80
334	A. W. Montgomerie	Miss Robb 9th Lessnessock	906	Dec. 18, 1919	Oct. 2	—	14 21	2 17	0 38	2 2	21	17 89	Good	Good	34 25	—	34 25
335	A. W. Montgomerie	Netherton Dandy 5th	984	Nov. 26, 1919	Sept. 20	—	26 18	14 17	0 35	14 1	6 2	25 43	Good	Soft	22 75	—	22 75
336	A. W. Montgomerie	Netherton Queen Greenfield 4th	1137	Jan. 26, 1920	Sept. 28	—	18 20	3 18	3 38	6 1	5 1	28 42	V.G.	V.G.	21 75	—	21 75
337	Quinton Dunlop, Junr.	Greenan Ann	986	Mar. 4, 1920	Aug. 30	—	47 21	5 18	10 39	15 1	7	27 73	V.G.	V.G.	23 00	70	23 70
338	Countess De La Warr	Buckhurst Pearl	921	Aug. 28, 1912	Sept. 20	—	26 20	0 16	8 36	18 1	8	24 33	V.G.	V.G.	24 00	—	24 00

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of Last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz. lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total No. of Points	Awards
							Mom.	Even.	Total			Colour	Quality				
			lbs.				lbs. ozs.	lbs. ozs.	lbs. ozs.	lbs. ozs.							
339	Muriel, Countess De la Warr	Buckhurst Sur-prise	1020	July —, 1915	July 10, 1922	98	17	6	31	121	91	10-96	V.G.	25-50	5-80	31-30	43 Prize
342	L. Currie ...	Minley Winnie ...	964	Oct. 22, 1917	Aug. 29	48	24	2	21	0 45	21	23 38-89	V.G.	18-75	80	19-55	
343	J. W. Towler ...	Ardeacain Prune...	742	June 6, 1918	Sept. 23	23	23	5	17	3 40	81	7 1 28-16	Fair	23-50	—	23-50	
344	J. W. Towler ...	Wadland's Witch	742	Feb. 27, 1917	Aug. 31	46	21	11	16	0 37	111	2 32-64	Fair	18-00	60	18-60	
345	J. W. Towler ...	Flora of Carton ...	878	Mar. 23, 1917	Aug. 2	75	25	0	17	0 42	01	6 30-65	Good	22-00	3-50	25-50	
348	The Elmhurst Farming & Trading Co., Ltd.	Elmhurst Daffodil	770	1917	Aug. 12	65	12	13	14	0 26	130	11 38-85	Good	11-00	2-50	13-50	
349	Capt. N. Zambra, M.C., & C. Williamson-Milne	Castledough Nina	1093	Mar. 3, 1915	May 23	146	16	5	12	14	29	30 12 38-90	Pale	12-00	8-00	20-00	
352	Muriel, Countess De la Warr	Moonlight of Warren	742	Mar. 22, 1920	Aug. 24	53	11	8	10	0 21	80	13 25-29	Good	18-75	1-30	15-05	
353	Muriel, Countess De la Warr	Blue Rock of Warren	720	June 3, 1920	Sept. 4	42	12	8	9	11	22	30 14 25-37	Good	14-00	20	14-20	
354	Lady Avice Menzies	Leah of Warren	700	May 23, 1920	Oct. 1	15	10	2	7	10	17	120 11 25-72	Good	11-00	—	11-00	

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth.	Date of Last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total No. of Points	Awards								
							Morn.	Even.	Total			Colour	Quality												
			lbs.				lbs	ozs	lbs	ozs	lbs	ozs													
358	Capt. N. Zambra, M.C., & C. Williamson-Milne	Hattingley Haughty	908	May 30, 1920	1922, Sept. 24	22	14	6	12	14	27	41	4 ¹ / ₂	21	28	Pale	Good	20	50	—	20	50			
360	Capt. N. Zambra, M.C., & C. Williamson-Milne	Hattingley Handicap	671	1920	Aug. 19	58	15	3	12	0	27	3	0	13	33	55	Pale	Fair	13	00	1	80	14	80	
361	Lady Kathleen Hare	Brokenhurst Mignonette	874	1918	July 12	96	8	2	9	8	17	10	0	14 ¹ / ₂	19	57	Pale	Good	14	50	5	60	20	10	
363	A. C. King ...	La Mancha	803	1913	May 18	151	17	10	12	5	29	15	1	0 ¹ / ₂	29	06	Pale	Good	16	50	11	10	27	60	
364	A. C. King ...	Madeline Slane Black Sally	745	July 7, 1914	April 16	183	10	2	7	11	17	13	0	9 ¹ / ₂	30	18	Fair	Good	9	50	8	00	17	50	
370	J. Russel ...	Kingswood Gladys	1490	July 25, 1916	Sept. 16	30	38	13	33	13	72	10	3	0	24	21	Pale	Good	48	00	—	—	48	00	£3 Prize
374	Randall Bros. ...	Blackmore Tiny 2nd	1395	Dec. 2, 1915	Sept. 29	17	34	13	28	11	63	8	1	8 ¹ / ₂	41	50	Good	Good	24	50	—	—	24	50	
375	Randall Bros. ...	Woodside Candy	1260	July 20, 1916	Oct. 1	15	26	8	28	3	54	11	1	15 ¹ / ₂	27	76	V.G.	Good	31	50	—	—	31	50	
380	G. Holt-Thomas	Cymric Cheeky ...	1344	July 24, 1915	Sept. 11	35	38	0	28	3	66	3	2	13 ¹ / ₂	23	22	V.G.	Soft	45	75	—	—	45	75	£2 Prize
381	G. Holt-Thomas	Cradlehall Peggy	1494	June 25, 1916	Aug. 25	42	37	6	29	3	66	9	2	23	30	72	V.G.	V.G.	34	75	1	20	35	95	II (

BUTTER TESTS—OTHER BREEDS—Continued.

No. In Catalogue	Exhibitor	Name of Animal	Live Weight	Date of Birth	Date of last Calf	No. of Days in Mills	Milk Yield			Butter Yield	Ratio, viz., Butter to lbs. Milk	Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards
							Morn.	Even.	Total			Colour	Quality				
							lbs	ozs	lbs	ozs	lbs	ozs					
383	G. Holt-Thomas	Blackmore	lbs. 1250	April 4, 1915	1922 Sept. 20	2641	1335	1377	102	81	30.65	V.G.	V.G.	40.50	—	40.50	U.C.
388	W. & R. Wallace	Kingswood Bona 2nd	1614	Dec. 4, 1916	Sept. 17	2932	325	1458	11	121	32.43	V.G.	Soft	28.75	—	28.75	
390	W. & R. Wallace	Hedges Golden Dawn Mist	1404	Dec. 15, 1915	Sept. 19	2725	622	047	61	21	41.92	Ex.	Good	18.25	—	18.25	
392	A. & J. Brown	Hedges Drop 2nd	1210	July 15, 1916	July 7	10140	632	872	141	01	71.71	V.G.	Soft	16.50	2.00	18.50	
393	A. & J. Brown	Dutch Gossipy Moss Peggy	1327	Sept. 26, 1916	Aug. 28	4931	1425	1457	122	1	28.03	Good	Good	33.00	.90	33.90	
394	Longford Farms, Ltd.	Hedges Dutch Stately	1379	Nov. 25, 1916	May 12	15730	1321	552	21	51	38.88	Fair	Good	21.50	8.00	29.50	
396	The Earl of Leitrim	Leitrim Lead	1216	Sept. 25, 1918	Aug. 30	4721	1017	1339	71	6	28.78	Good	Good	22.00	.70	22.70	
400	Lt.-Col. W. E. Harrison, O.B.E.	Wychnor Pansy 2nd	1402	Jan. 7, 1918	Sept. 25	2140	229	1470	01	51	51.85	Good	Soft	21.75	—	21.75	
402	Capt. R. C. Buxton	Petygards Countess	1294	Aug. 24, 1918	July 11	10724	1320	545	21	1	42.56	Good	Good	17.00	5.00	22.00	
404	Major H. A. Birkbeck	Ongar Gentle	1532	Jan. 20, 1918	Aug. 20	5736	227	1464	01	12	36.57	V.G.	Good	28.00	1.70	29.70	
405	Major H. A. Birkbeck	Docking Auntie	1140	Aug. 30, 1918	Sept. 7	3926	220	1046	120	15	49.21	Good	Fair	15.25	—	15.25	
407	G. Holt-Thomas	Beebles Silver Queen	1324	Feb. 11, 1918	Aug. 26	5134	231	1466	01	8	40.00	Good	Good	24.00	1.10	25.10	

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue	Exhibitor	Name of Animal	Live Weight	Born	Date of last Calf	No. of Days in Milk	Milk Yield			Butter Yield	Ratio, viz., lbs. Milk to lbs. Butter	(Colour and Quality of Butter		No. of Points for Butter	No. of Points for Lactation	Total Number of Points	Awards
			lbs.				Morn.	Even	Total	lbs. ozs. lbs. ozs. lbs. ozs.		Colour	Quality				
408	G. Holt-Thomas	Cymric St. Malo	1460	Feb. 3, 1918	1922, Sept. 17	29 35	8 32	2 67	10 1	7 1/2	46-00	Good	Soft	23-50	—	23-50	
414	J. Russel ...	Attimore Flirt ...	1230	Mar. 10, 1918	Sept. 12	34 23	6 17	0 40	6 1	15 1/2	20-70	Pale	Good	31-25	—	31-25	H.C.
415	W. & R. Wallace	Hadham Duchess	1322	April 18, 1918	Oct. 3	13 31	14 30	6 62	4 1	15 1/2	31-92	Fair	Soft	31-25	—	31-25	H.C.
416	W. & R. Wallace	Attimore Sweet Maid	1192	Oct. 20, 1917	Sept. 4, 1921	42 37	2 25	5 62	7 1	3 1/2	52-47	Good	Good	19-25	20	19-45	
422	Longford Farms, Ltd.	Chaddesley Peggy	1391	Mar. 6, 1919	Oct. 23, 1922	33 71	14 12	13 27	11 0	11 3/4	37-93	Pale	Good	11-75	—	11-75	
437	Hache Herd ...	Hache Ceres	1012	May 4, 1920	Aug. 30	47 23	11 23	6 47	10 12	12	62-74	Pale	Soft	12-00	70	12-70	
438	Hache Herd ...	Hache Teelt ...	1209	Dec. 29, 1920	Sept. 2	44 26	2 23	8 49	10 1	7	34-45	V.G.	Good	23-00	—	23-40	
442	C. W. Crompton	Glyn Ethel ...	1346	Aug. 16, 1914	Aug. 18	59 26	5 21	13 48	2 2	1	23-35	V.G.	V.G.	33-00	1-90	34-90	£3 Prize
444	Allen & Rogers ...	Plattian Gwyngyll	1092	Feb. 17, 1918	Aug. 25	52 13	5 22	6 35	11 1	6 1/2	25-49	V.G.	V.G.	22-50	1-20	23-70	
445	N. L. Moon ...	Sianet o'r Bryn ...	1162	Jan. 30, 1919	Aug. 27	50 25	10 25	3 50	13 2	0 1/2	25-02	Pale	Good	32-50	1-00	33-50	H.C.
447	University College of North Wales	Snowdon Rose ...	1381	July 20, 1911	Aug. 30	47 23	5 19	5 42	10 1	13	23-55	Ex.	Good	29-00	70	29-70	

BUTTER TESTS—OTHER BREEDS—Continued.

No. In Catalogue.	Name of Animal.	CHURNING—TIME AND TEMPERATURE.					Buttermilk, when churning finished Degrees
		Time		Duration of Churning Minutes	Dairy Degrees	Cream and Churn Degrees	
		Churning began	Churning finished				
210	Gipsy of Treggoning	2 55 p.m.	3 17 p.m.	22	64	52	56
211	Lynchemore Rosy of Mauxmarquis 4th	12 11 "	12 26 "	15	64	52	60
213	Trequean Maggie 3rd	12 26 "	12 45 "	19	64	52	57
215	Masher Girl of the Marais	12 16 "	12 32 "	16	64	52	58
216	Queen of the Haut Pavé	12 14 "	12 35 "	21	64	52	57
217	Polly 2nd of Hillside	2 50 "	3 5 "	15	66	52	56
218	King's Queen Caradoc	12 15 "	12 40 "	25	64	52	56
219	Dahlia Polly 2nd	2 43 "	3 21 "	38	66	52	60
220	Cloe de la Cloture	2 48 "	3 13 "	25	66	52	60
221	Christines Duchess	2 51 "	3 21 "	30	66	52	58
223	Lynchemore Rosy	12 32 "	1 6 "	34	64	52	60
224	Mawgan Rose	2 44 "	3 20 "	36	66	52	60
228	Westfield Meadow Sweet	12 40 "	1 1 "	21	65	52	59
229	Emblem's Bluebell	2 51 "	3 11 "	20	66	52	57
233	Lily's Blonde	2 49 "	3 17 "	28	66	52	61
297	Stratton Tottie 5th	6 2 "	6 44 "	42	62	52	58
298	Barrowfield Rose	6 1 "	6 56 "	55	62	52	62
299	Charm	5 38 "	6 19 "	41	62	52	61
300	Wynford Molly	5 41 "	6 28 "	47	62	52	60
301	Wynford Pill	5 43 "	6 3 "	20	62	52	60
302	Wynford Laburnam	5 57 "	6 37 "	40	62	52	60
303	Lovely 4th	7 17 "	7 40 "	23	64	52	58
304	Fentongollan Buttercup	5 31 "	5 48 "	17	62	52	60
306	Fentongollan Stella	5 30 "	6 32 "	62	62	52	59
307	Netton Lily	5 35 "	5 50 "	15	62	52	59

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue	Name of Animal	CHURNING—TIME AND TEMPERATURE					Buttermilk, when churning finished
		Time		Duration of Churning	Dairy	Cream and Churn	
		Churning begun	Churning finished				
				Minutes	Degrees	Degrees	Degrees
308	Pinkie	5 33 p.m.	3 55 p.m.	22	62	52	60
310	Milkaway	7 6 "	8 22 "	76	61	52	60
311	Auchenbrain Princess 5th	5 40 "	6 17 "	37	62	52	60
313	Cowhill Mirrie 6th... ..	5 59 "	6 27 "	30	62	52	58
314	Campbellton Stanley 7th	5 46 "	6 11 "	25	62	52	61
315	Bunton Hill Lady Jean ...	6 30 "	7 0 "	30	63	52	60
317	Auchenbrain Yellow Kate 20th	6 27 "	8 35 "	128	63	52	60
318	Douglashall Nessie 2nd...	6 2 "	7 12 "	70	63	52	62
321	Carston Helen	6 11 "	6 43 "	32	63	52	61
324	Byrehom Viper	6 50 "	7 18 "	20	63	52	60
325	Aitkenbar Mabel 2nd ...	6 27 "	7 37 "	70	63	52	64
326	Brownie	6 32 "	6 50 "	18	63	52	60
328	Dunlop Barnmaid	6 42 "	7 7 "	25	63	52	60
329	Buntonhill Eunice 2nd...	6 35 "	7 2 "	27	64	52	60
330	Barr Dairymaid	6 33 "	6 50 "	17	61	52	56
331	Moorfield Dolly	7 3 "	7 30 "	27	64	52	60
332	Cargen Holm Proud Lady ...	6 50 "	7 48 "	58	63	52	60
333	Cargen Holm Miss Robb 9th	6 45 "	7 27 "	52	63	52	56
334	Lessnessock Dandy 5th ...	6 52 "	7 11 "	19	64	52	55
335	Netherton Connie 3rd ...	6 25 "	6 42 "	17	63	52	59
336	Netherton Queen Greenfield 4th...	6 48 "	7 10 "	22	63	52	60
337	Greenan Ann	6 15 "	7 10 "	55	63	52	58
338	Buckhurst Pearl	6 25 "	6 53 "	28	63	52	58

BUTTER TESTS—OTHER BREEDS—Continued.

No. in Catalogue	Name of Animal	CHURNING—TIME AND TEMPERATURE				
		Time		Temperature		
		Churning began	Churning finished	Duration of Churning	Dairy	Cream and Churn
				Minutes	Degrees	Degrees
						Buttermilk, when churning finished
339	Buckhurst Surprise	6 34 p.m.	7 2 p.m.	28	64	52
342	Minley Winnie	6 5 "	6 23 "	18	63	52
343	Ardacuin Prune	6 8 "	6 39 "	31	63	52
344	Wadland's Witch	5 56 "	6 21 "	25	62	52
345	Flora of Carton	7 23 "	7 40 "	17	64	52
348	Elmhurst Daffodil	7 27 "	8 25 "	58	64	52
349	Castledough Nina	3 30 "	3 55 "	25	66	52
352	Moonlight of Warren	3 37 "	4 17 "	40	66	52
353	Blue Rock of Warren	3 45 "	4 20 "	35	66	52
354	Leah of Warren	3 37 "	3 58 "	21	66	52
358	Hattingley Haughty	3 45 "	4 9 "	24	66	52
360	Hattingley Handicap	3 53 "	4 15 "	23	66	52
361	Brokenhurst Mignonette	3 58 "	4 18 "	20	66	52
363	La Mancha Madeline	3 55 "	4 22 "	27	66	52
364	Slane Black Sally	3 52 "	4 16 "	24	66	52
370	Kingswood Gladys	4 1 "	4 27 "	26	66	52
374	Bhokmore Tiny 2nd	4 11 "	4 46 "	35	66	52
375	Woodside Candy	4 8 "	4 35 "	27	66	52
380	Cymric Cheeky	4 3 "	4 27 "	24	66	52
381	Cradlehall Peggy	4 8 "	4 28 "	20	66	52
383	Blackmore Ena 2nd	4 23 "	4 45 "	22	66	52
388	Kingswood Dawn Mist	4 32 "	5 17 "	45	66	52

BUTTER TESTS—OTHER BREEDS—Continued.

No. In Catalogue	Name of Animal	CHURNING—TIME AND TEMPERATURE				Buttermilk, when churning finished	
		Time		Duration of Churning	Daily		Cream and Churn
		Churning began	Churning finished				
				Minutes	Degrees	Degrees	Degrees
390	Hedges Golden Drop 2nd	4 17 p.m.	4 33 p.m.	16	66	52	58
392	Hedges Dutch Gossip	4 9 "	5 37 "	88	66	52	60
393	Moss Peggy	5 7 "	5 35 "	28	62	52	56
394	Hedges Dutch Stately	5 10 "	6 17 "	67	62	52	58
396	Leitrim Lead	4 45 "	5 15 "	30	64	52	60
400	Wychnor Pansy 2nd	7 10 "	7 36 "	26	64	52	60
402	Petygards Countess	7 14 "	8 25 "	71	64	52	60
404	Ongar Gentle	7 3 "	7 23 "	23	64	52	56
405	Docking Auntie	7 25 "	8 12 "	47	64	52	60
407	Beccles Silver Queen	7 26 "	7 48 "	22	64	52	56
408	Cynric St. Malo	7 33 "	8 1 "	28	64	52	60
414	Attimore Flirt	7 42 "	7 58 "	16	63	52	59
415	Hadham Duchess	7 42 "	8 2 "	20	63	52	56
416	Attimore Sweet Maid	7 38 "	7 57 "	19	63	52	56
422	Chaddesley Peggy	7 52 "	8 30 "	38	63	52	58
437	Hache Cores Untidy	7 48 "	9 50 "	122	63	52	63
438	Hache Teetl	7 18 "	7 43 "	25	64	52	60
442	Glyn Ethel	5 13 "	5 32 "	19	62	52	56
444	Plattian Gwynnyll	5 20 "	5 41 "	21	62	52	56
445	Sianet o'r Bryn	5 15 "	5 41 "	26	62	52	56
447	Snowdon Rose	5 4 "	5 23 "	19	62	52	56

NEW INVENTIONS AT THE 1922 DAIRY SHOW.

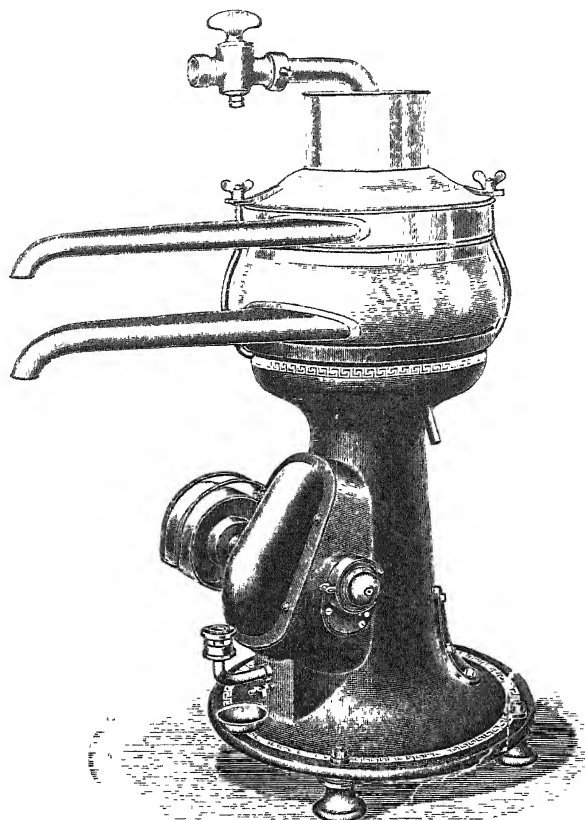
BY WILLIAM BURKITT, B.Sc., F.H.A.S., N.D.D.

Throughout the history of the Dairy Show the number of "new inventions" competing year by year for the Association's Silver and Bronze Medals has been most satisfactory and creditable to the dairy machinery industry, varying in numbers from six in the dark war year of 1915 up to a maximum of 43 in 1904, the 30 entries in 1922 compare favourably with an average of 26 entries for the past 30 years.

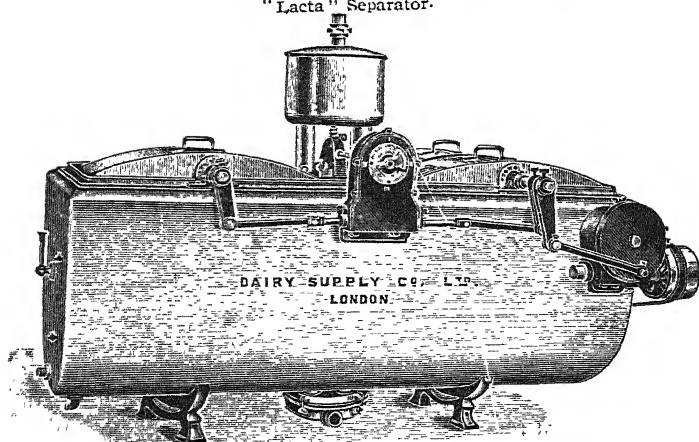
Whilst there was nothing of an epoch-making character amongst this year's entries, yet there were many exhibits showing distinct improvement over previous ideas, and the fact that four silver and ten bronze medals were awarded proves, I think, that progress is being made in many directions in dairying appliances.

Following the order in the catalogue the first silver medal was awarded to the Lacta Power Separator, 660 gallons per hour, price £125, exhibited by the Maskin och Brobygggnads, Aktiebolagst, Helsingfors, Finland, a well-finished machine with the following points worthy of mention, viz., the distance studs on the discs are pressed and not welded: the bowl is self balancing with an ingenious spring buffer arrangement of the spindle, which is in one piece; the neck bearing is elastic, having six buffer springs and buffers fitted radially; the bottom bearing is a roller bearing and interchangeable; the bowl is easily locked at three points for removal; the oiling system simple, and its action can be observed from without; the timing gear, too, is of an effective and simple nature.

The "Astra" Automatic Milk Retarding (Positive Hold) Vat, as shown by the Dairy Supply Co., Ltd., Museum Street, London, W.C.1, gained a silver medal. This machine is intended to hold milk for thirty minutes at 145 to 150° Fahr.; this action, together with the filling and emptying of the milk compartments being automatic, eliminating the human element and thus ensuring a positive hold for the correct time and at the correct temperature. All parts of the vat coming into contact with milk are of heavy copper twice tinned, and the vat double jacketed for the admission of hot water or steam. The milk from a Pasteurizer enters a distributor over the vat and flows at regular intervals into the four compartments of the vat, the operation being indicated on a dial, and effected by a rising cam which opens every 30 minutes, thus emptying and filling each compartment automatically; skin formation on the surface of the milk and subsequent loss of fat is prevented by automatic stirrers or agitators. The mechanism actuating all the processes is simple, the gearing entirely enclosed and working in an oil bath; the price of the plant is £203, with a capacity of 330 gallons per hour.



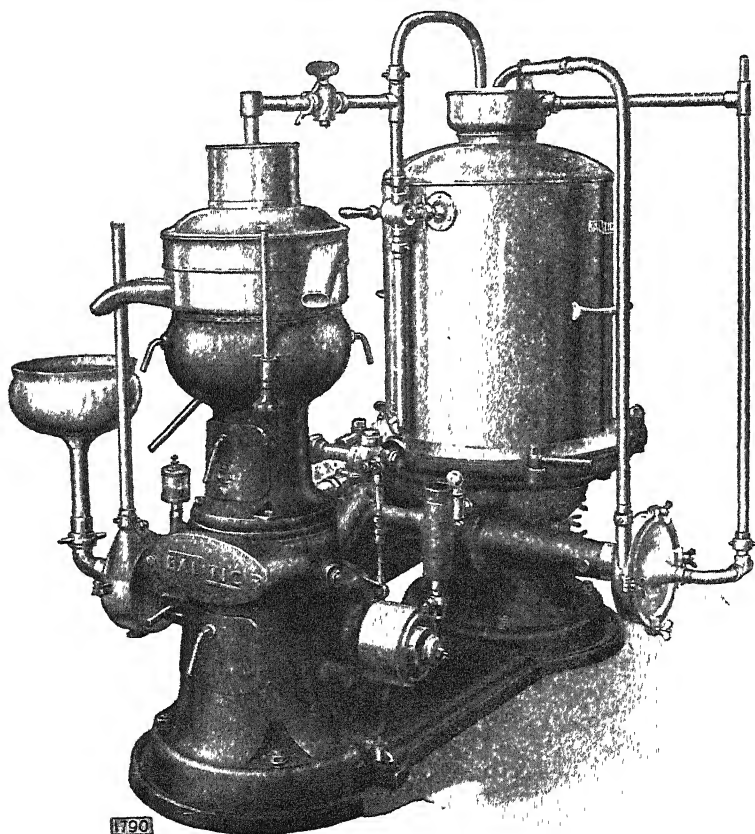
"Lacta" Separator.



"Astra" Automatic Milk Retarding (Positive Hold) Vat.

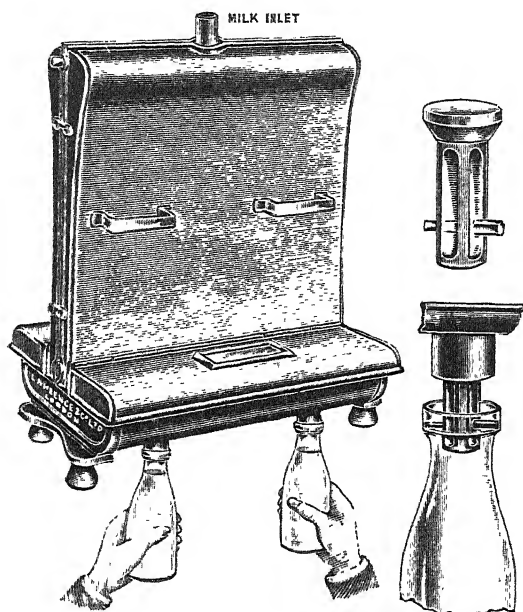
The Dairy Outfit Co., Ltd., 251-255, Pentonville Road, King's Cross, London, N. 1, received a silver medal for their "Baltic" Turbine Dairy Plant, a Swedish machine, the price of which for the 330 gallon per hour size is £327 10s. (receiving tank not included). This plant combines the operations of Pasteurizing, separating, and cooling; it is driven by a steam turbine, no motor or steam engine being necessary, the exhaust steam heats the milk, but at no point is live steam allowed to come in contact with the milk. The turbine runs at 7,000 revolutions per minute; the power necessary for the whole operation being about 5 h.p.; for the new milk trade the separator can easily be cut out, and a pulley is fitted for churning if it is necessary to make butter at any time.

The plant was working throughout the Show in the Working Dairy and gave satisfactory results.



"Baltic" Turbine Dairy Plant.

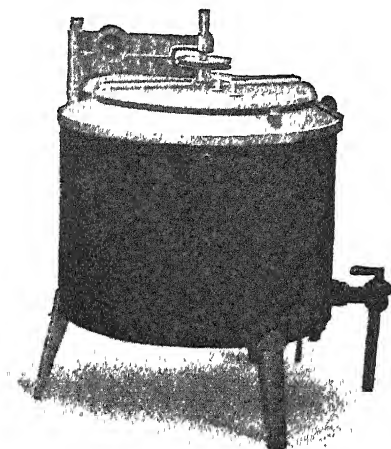
The last of the silver medals was awarded to the Patent Capillary Refrigerator with bottle-filling attachment, exhibited by Lawrence & Co., Ltd., 132-S, Latimer Road, North Kensington, London, W.10, price £15. Specially designed to cool 80 gallons per hour of Grade "A" milk, this cooler has detachable dust-proof covers, a large-bottom trough, with a very simple and effective filling arrangement for two bottles, actuated by a simple weighted stopper, easily cleaned. This seemed a distinct improvement on other machines for this purpose.



Lawrence's Patent Capillary Refrigerator,
with Bottle-filling Attachment.

Still following the catalogue, the first of the bronze medals was awarded to the Aluminium Plant & Vessel Co., Ltd., Point Pleasant, Wandsworth, S.W. 18, for their Midget Bulk Pasteurizer, which may be described as a plain tank 50-gallon batch Pasteurizer, costing £48.

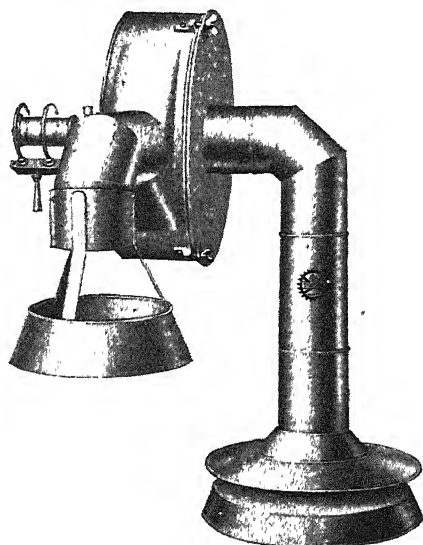
This cylindrical tank cools, heats, Pasteurizes, holds for 20 minutes and cools again for 15 minutes. It is fitted with a coil to spray water and a mechanical stirrer.



"Midget" Bulk Pasteurizer.

Messrs. W. H. Smith & Co. (Whitchurch), Ltd., Whitchurch, Salop, gained a bronze medal for their Milk Foam Destroyer, price £30. This device seems to efficiently remove the foam created on milk, which is such a bugbear in dairies and factories.

A light float rests on the milk and the foam is drawn off by a $\frac{1}{4}$ h.p. fan, and converted back into liquid milk again. The machine is easily dismantled for cleansing, prevents foam, and thus saves waste of milk and inconvenience.

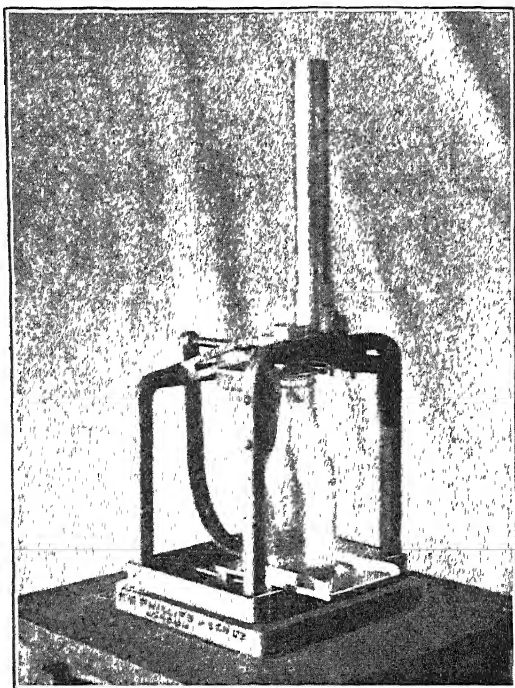


Milk Foam Destroyer.

The "Finsbury" Automatic Disc Inserter, price £15, earned a bronze medal for F. G. Phillips & Son, Ltd., 1, Goodwin Street, Finsbury Park, London, N. 4, by which 600 to 800 and up to 1,000 bottles of milk per hour can be sealed.

The controlling principle is a double-armed cam, the forward movement of which feeds in and holds a cardboard or parchment disc, and the backward movement guides the disc into bottle neck for the plunger to press in and seal down.

This is, of course, infinitely quicker than hand-filling, completely closes the bottles, does not break or contaminate the disc. Three platforms, two of which are movable, are supplied, so as to suit the different capacity bottles.



"Finsbury" Automatic Disc Inserter.

The loss of milk from railway churns has always been a serious question for dairy farmers, and any invention which helps to diminish this loss always attracts the attention of the judges in this class, and a bronze medal was awarded to Messrs. Carter & Gallimore, of Ashbourne, Derbyshire, for their Hygienic Milk Sealed Disc for milk churns. These stout parchment discs, costing about $\frac{1}{3}$ d. each, are pressed into the neck of a milk churn and closed down by the lid, thus giving

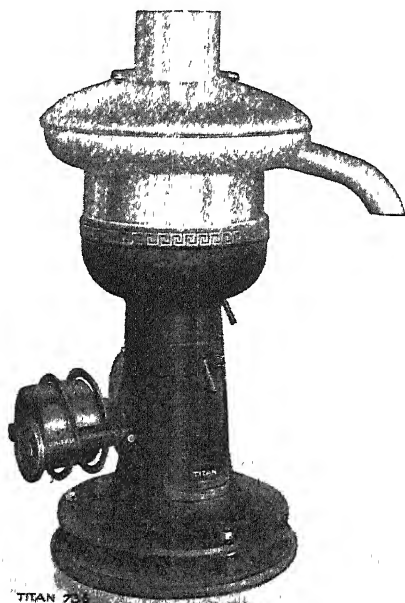
an absolutely anti-splash joint, being almost liquid proof when the churn was inverted, and they would doubtless have a considerable deterrent effect in preventing the opening of churns and pilfering of milk in transit.



Hygienic Disc for Sealing Milk Churns.

It is a sound maxim that with care there should be no dirty milk, but the fact remains that whilst the storm of protest against such milk is greatly over exaggerated, much to the disadvantage of both the milk consumer and the milk producer, yet there are milks of this character. hence the need for such an appliance as the Titan Milk Clarifier, capacity 900 gallons per hour, and price £140, exhibited by the Alexandra Separator Co., 20, High Holborn. London, W.C. 1, to which was awarded a bronze medal.

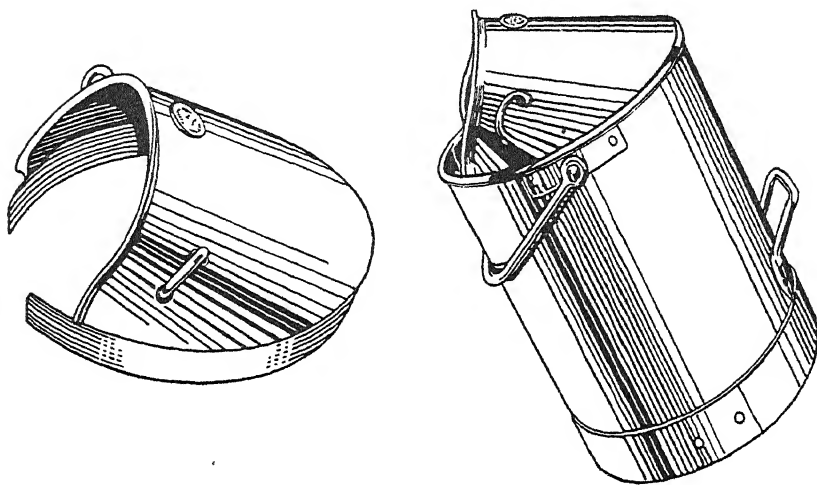
Fashioned much like a separator the milk is admitted by tubes on top of wings and led to the outside of the bowl thus preventing separation. There are no plates or discs in the bowl, which will clean milk at 60° Fahr., and the bowl will retain up to 10 lbs. of slime or dirt.



"Titan" Milk Clarifier.

A year ago Mr. J. Dingle Williams, Moor Cottage, Cleddon, near Monmouth, made a praiseworthy attempt to gain a medal with a Clean Milk Pail, and he is now awarded a bronze Medal for his pail, costing £1, with improved detachable cover. The present can has improved ears or loops for fixing the hood, a bigger opening for milking

into, and is better finished, the opening being reinforced and having no corners inside, and whilst the pail is still capable of much improvement it marks a distinct step in the right direction.

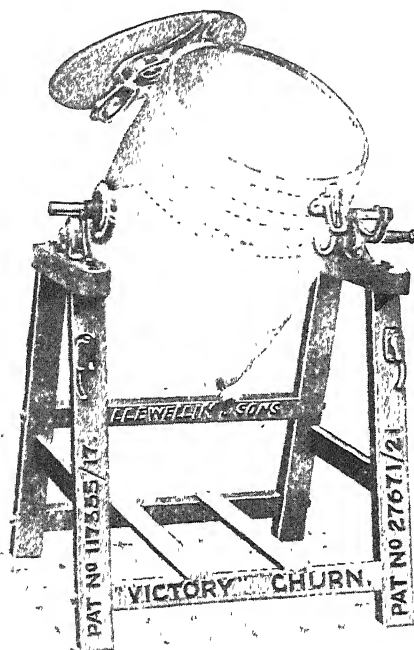


Clean Milk Pail.

[7]

Although one of the oldest of dairy appliances it is much to the credit of our churn makers that they do not rest content with the churn as it was say ten years ago ; Messrs. G. Llewellyn & Son, of the Royal Prize Churn Works, Haverfordwest, have struggled repeatedly and with great success to improve their excellent " Victory " churn, and only a few years ago gained the silver medal of this Association, the R.A.S.E. and many other societies, and whilst the improvement this year was hardly deemed worthy of the Association's premier award, yet it was well worthy of the bronze medal awarded to it. The improvement consists of an open-hinge lid, *i.e.*, the lid opens on one end of the cross bar, falling back and resting on a rubber pad on the side of the churn. This completely obviates the necessity of lifting off the lid every time the churn is opened for inspection, washing, &c., and it is practically impossible to detach the lid accidentally.

Cream or grains of butter can be washed off the lid thus opened, whilst for cleansing it can be easily removed ; the rubber pads are easily renewed, and the cost of the churn thus improved is £9 5s.

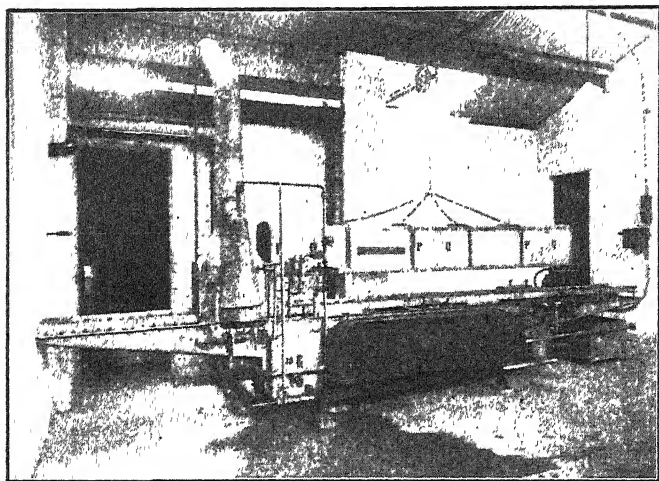


"Victory" Butter Churn.

Messrs. A. Grabham & Co., 139, Englefield Road, Essex Road, London, N.1, continue to improve their "Dreadnought" Bottle Washer. The new addition this year for which they received a bronze medal allows of the bottles being more thoroughly sterilized by the automatic injection of highly super-heated steam, produced by a gas burner.

In place of the raising and lowering jets in the older type we have a fixed jet of super-heated steam, which has the effect of removing all water or fluid. The additional cost of this improvement is £50.

The same firm showed a very "Handy" Bottle Box Truck, for the quick and easy moving of bottle boxes; this too gained a bronze medal as convenient, labour saving, and likely to lessen loss by breakage, as it has a grip for the hand-hole of the milk boxes, and will also tilt easily.

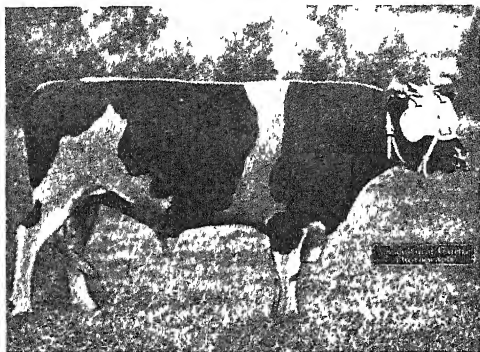


"Dreadnought" Bottle Washer.



"Handy" Bottle Box Truck.

Mr. F. Stanyer, of Fernhill, Kenilworth, gained the last of the bronze medals for a bull mask, price 50s., which should effectually prevent a bull from attacking anything, as his range of vision is limited so that he can only see downwards, this being effected by a light iron shield over his eyes and forehead affixed to his horns and muzzle by straps. It is easily fixed or removed, comfortable in wear, and prevents the bull breaking pasture and causing trouble.



Bull Mask.

Other exhibits worthy of comment are the Clean Milking Pail, shown by Mr. G. Q. Armitage; the Milk Refrigerator of W. H. Smith & Co. (Whitchurch); the Can Washers shown by the Dairy Outfit Co., Ltd., and Carter and Gallimore; and the Dairy Supply Co.'s new model "Alfa Laval" Separator A.V. 8.

THE POULTRY SECTION.

By JOSEPH PETTIPHER.

THERE is always a freshness about the poultry exhibits at the Dairy Show over and above any of the other classic events of the year, due chiefly to two causes—first, that it is mainly restricted to the fresh faces of the season's breeding which, in the majority of cases, are making their first appearance in public, and second, to the fact that we have not had a classic since the old year and appreciate a change from the cares and worries of the breeding and rearing season. The "Dairy" comes as a kind of poultry barometer which indicates in various ways the trend and status of poultry culture, the ups and downs and the popular leanings, and it very often happens that new breeds are there first introduced to the public, either to become popular or subsequently to be snuffed out. We have such an example in the Jubilee Indian Game. Originated by Mr. Hunt in 1887, I think it took till 1901 before he sufficiently perfected them to introduce them at the Dairy Show that year, and now we find them an established, useful, and popular breed. But I always look back on that first exhibit as something impressed on my mind by its first appearance at the Dairy Show and the interest it created, and one might cite other subsequent cases in the same way. A striking feature of the recent classics which was, perhaps, particularly noticeable at the last Dairy Show because the exhibits were all of the season's breeding, was the strong trend in favour of the dual-purpose bird. People are realising that too much has been made of the one feature of abnormal egg records, the breeding for which has, in so many cases, resulted in lack of size and lack of stamina, not only in the bird itself, but also in its offspring. As the old proverb has it "You can have but one pussy in one skin," and it stands to reason that fowls which are bred to strain with the one object of high egg records only in view, cannot be at same time producing a good table fowl or healthy, hardy and satisfactorily productive offspring. All the productive organs are played out by the one purpose, and as this is being realised, favour turns to the dual-purpose bird. It may be a different breed or equally the same variety, but of altogether a different strain and type—a type which will produce a reasonable flock average of eggs—a decent table fowl, and at the same time conform to the Exhibition Standard because the latter encourages the type which will prove most regularly dependable for all-round utility purposes. The sudden craze for what have been termed purely utility shows or utility classes is fast disappearing. No doubt there have been excellent specimens shown in such classes, but the majority of the entries can be let down mildly as mediocre, and poultry keepers are realising that it is the

dual-purpose type that are most profitable when it comes to practical purposes. The various fads which have flashed on the poultry horizon for judging utility poultry may be amusing to lookers on and lucrative to their operators, but they are of no avail to the Man in the Street, who wants an all-round useful fowl that will prove generally profitable under the ordinary conditions in which he has to keep them, and he is fast realising that it is the modern dual-purpose type, bred to standard for that purpose, to which he must look and which is prepared for him by the modern dual-purpose exhibitor.

It is very unfortunate that the space available for the poultry at the Dairy Show is so limited as to be totally inadequate to take the huge entry which might be had did room permit. One can scarcely imagine what it would be like if it were not absolutely imperative on the Committee to limit not only the Classification, but also the number of entries that can be accepted, and for this same reason of space the alleys are too narrow for the visitors to comfortably see the birds, as it is obvious to anyone that each year brings more and more people who have become interested in one feature or another of the industry. A word of praise is due to our Chief Acting Steward, Mr. R. Kirk, for the ingenious way in which he makes the best possible use of the space at command, but, unfortunately, the walls of the Hall are not elastic and there is, meanwhile, every indication of an increasing desire to exhibit at the "Dairy." To divide and hold the poultry section on a separate date would, in my opinion, be as suicidal here as it would be at Bingley Hall, where a similar trouble prevails, so that there appears nothing to do but to make the best of it. The detection by one of the Judges of a dyed specimen was an unfortunate and unpleasant incident, which met its due deserts, but it tends to emphasize the honesty of the poultry exhibitors and the fancy generally, that out of a total of between seven and eight thousand entries in the feather section, there should be only one disqualified.

The Auction Sale provides another barometer of the vastly increasing interest in the breeding of a good class of poultry. Every year the crowd around the auctioneer seems to get larger and bidders amongst it more general, so different to a few years ago when sales were mainly confined to a few well-known exhibitor fanciers, and this is supplemented by the large number of birds subsequently claimed at the sales office window. There are usually a few sensational high prices and this year proved no exception, but more proof of interest and prosperity in the industry is evidenced by the many birds which changed hands at moderate prices, many of them going to people unknown as exhibitors.

A word of praise and thanks is due to the Judges who officiated on the various breeds. It is one thing to criticise a Judge after the cards are on the pens and quite another to properly locate them when the birds face the Judge, especially in some of the large classes we now get at the "Dairy." Just take the Rhode Island Reds as

an example—209 Single-combed Cockerels were penned to compete for six prizes, whilst the Pullets for a like number of prizes numbered 235. White Wyandottes, Sussex, and some other breeds were almost equally large, and one begins to wonder if some arrangement cannot be made to in some way sub-divide these immense classes, many of which contain quite a number of birds good enough to reach a premier position. One thing that struck me particularly at this last show was the difference in the class of the majority of visitors in the early part of each day whilst daylight prevailed. In years gone by, after excluding the Fancier and Exhibitor, the majority of those frequenting the galleries were evidently visitors just “doing the Show,” just as one sees the crowd do at night-time, but now one sees a great majority keenly interested in the birds and appliances, evidently bent either on making purchases or learning all they can about the breed or breeds and machines, &c., in which they are interested, and no beginner can take a better lesson than by paying a visit to the Dairy Show. A weak point in the cult seems to be the dead table poultry, which were, taken as a whole, hardly as good as I have seen them; and, not applying remarks specially to this particular show, it seems to me that more attention might be paid to table poultry production generally, which can, in this day be so well done in unison with laying properties. On the other hand, this section provided one of the finest collections of eggs probably ever staged at any show, and certainly the best ever seen at Islington.

Just one little grumble before I pass on to briefly review the various breeds. Reference has been made above to the arduous tasks of the Judges and, on the whole, I believe their efforts are fully appreciated, but, apparently, there are a few people who do not follow out even good manners when making their dissatisfied criticisms. I notice one of the two Judges who officiated on a large entry concludes his report by stating that “Certain individuals made it their business to openly use abusive comments on the two Judges who had officiated.” There will always be difference of opinion, the most perfect standard ever drawn up may be differently construed according to the particular points of the individual bird, and no reasonable or capable Judge objects to fair criticism, but surely, it is not too much to ask that it should be done in a gentlemanly and fancier-like manner, and not be made a personal abuse. I have purposely withheld names both of Judges and abusers, the latter are, however, available, but I think such practices should be stopped as much as possible, and for that reason it is my intention to bring this matter before the Committee.

Dorkings led off the live section and it was pleasing to see the veteran breeder, Captain Phipps Hornby placing the cards. Here we immediately come to a point where those not privileged to handle might be inclined to wonder why some birds had not got higher in the prize list. The reason being the correct penalising for crooked breast-bones and a wry tail. Taken collectively the Darks and Silvers hold

their own well in quality, but they lack enough support by newcomers and remain much in the few old hands who still find them good enough to stick to.

Croad Langshans were good classes, and, on the whole, quality and type were well maintained. In a number of instances, however, there is still some amount of the objectionable purple barring. I thought the Pullet Class the best of the two, and the Judge told me he had put several cockerels back for crooked breast-bones which, to outward appearances, looked very attractive. One bird was passed for being an adult, apparently entered in error.

Brahmas appear to be regaining some of their lost prestige, particularly in the Lights. The Dark pullet that won was, I believe, own brother to same owners H. C. Cockerel, an evidence that this breed can be produced in both sexes without recourse to separate matings.

Cochins maintain quality, but are in few hands nowadays. The Buffs shown were as good as ever seen and there appears an effort to revive the Whites.

Sussex.—Here, again, the Judge put back a number of Cockerels in the Light Class, owing to faulty breast-bones, and if we except a few individual specimens, I did not think the Lights quite as good in general type and quality as usual. Many of them looked pinched in width and deficient in breast development. The Speckled variety were, I thought, of a better Sussex type, taking their classes as a whole, and the 63 entries made a brave show, the body colours were generally good in both sexes, but a number of Cockerels had too much white in tail, which somewhat detracted from their appearance. On the whole, I made the Speckled the best and most typical section of the Sussex Classes. Reds were fair, but not up to some seen other years, Pullets better on the whole than Cockerels; a number of the latter failed in under colour and hackles, and of still more importance, a lot of them lacked a high standard of type. Browns were better in type than Reds and much more uniform throughout the Classes. Size, too, was well up to standard requirements. I think this variety, in conjunction with the Speckled, will probably, ere long oust the Lights as prime favourites, both from the view of exhibitor and utilitarian, as they appear to conform more to dual-purpose requirements.

French Breeds are but a shadow of former days. The Houdans have become relegated to the Any Other Variety Class and only one of each sex entered, whilst Faverolles only produced two small classes. These varieties are too good to be lost and one may confidently expect an early revival of both.

Wyandottes well held their own in all the leading varieties. Whites predominated with 154 birds in the two classes. The Judge, who has a 30 years' Dairy Show experience considered them the equal, and probably superior, to anything ever seen at the Dairy Show. Unfortunately, he could not report similarly on the Partridges. The

Partridge is such an eminently useful all-round breed that we may hope it will once again be more generously treated. Like some other breeds it suffered from a too rapid and expansive boom and a consequent reaction.

In the Laced Varieties, the Golds in both sexes and the Silver Pullets stood out. The latter were a strong quality class and the three first pullets must have given the Judge some work to separate, though, in my opinion, the best bird eventually won. The Golds savoured more of generally good quality rather than one or two exceptional individuals and looked an improvement on those of late years. The Blacks are well ahead in Wyandotte type and quality, and are evidently fast becoming one of the most popular branches of this cosmopolitan Wyandotte family, followed by the Columbians, which are rapidly gaining a greater fixity of type, both in points and colour, and at present rate look like obtaining a typical Wyandotte character.

Orpingtons always find a goodly amount of favour, but it looked as though the present craze for some other breeds was somewhat overshadowing them. The Blacks were a decided improvement on previous post-war classes. Whites showed general quality throughout rather than any exceptional individual merit and a lot of less perfect, and Buffs provided a quality possibly never before equalled, the 1st and 2nd Cockerels and the 1st Pullet standing out as marvels of the breeders' art. The Blues seem to be coming back after a rest and provided two very good classes.

Rhode Island Reds mustered nearly 300 in their four classes, and whilst there were a lot of very typical birds, it naturally followed that, with such a large number, there was a good deal of variation when the whole was viewed collectively. In the Cockerel Classes there appeared a general improvement in shape and colour in all the leading birds, though the actual winners of some previous years were probably as good. I noticed a rather too leggy an appearance in a good many cases, but taken generally, I did not think there was much to complain of as to the increase in size, about which a good deal has been said lately. In the Pullets, I thought I saw increased evidence of the dual-purpose fashion, and the general colour and type was good. Once more too, the general correct type was the most evenly distributed in the Rosecombs, which are evidently rapidly equalling the singles in popular favour.

Anconas were perhaps about the best lot ever seen at the "Dairy." There was a more general evenness of quality and a gratifying gradual return to evenness of mottling which is an original and distinctive feature of the breed. The first prize Rosecombe Pullet deserves special mention for her general combination of type and colour.

Frizzles made a good class. It is a pity so many people seem to think these birds are merely fancy ornaments, whereas they have really useful properties, combined with their unique and attractive appearance.

Old English Game always maintain an even amount of favour and support. A somewhat difficult breed to judge. I thought, as I glanced over them, that they were particularly well handled, both in large birds and bantams. There appeared a noticeable improvement in the Brown-Red Classes which are evidently becoming a popular branch of the family. All the other classes evinced capital condition and type. Taken collectively, the Bantam Section was generally good and competition particularly keen.

Minorcas appeared much in the balance and at the turning of the ways. In a few instances there appeared to be an attempt to limit the extremes which, at one time, did the breed harm. Outside the winners, which appeared to be well chosen, there was a good deal of coarseness and some hollow lobes, and taking the classes as a whole, they do not appear as good as in the old days when the breed was at its zenith.

Andalusians were just a moderate lot, calling for no special comment.

Leghorns were good throughout. The Browns seem to show an advance in colour, particularly in Cockerels. The Whites were of a type much improved and superior as a general-purpose bird to either those we saw a few years ago in the Show pen, or those shown as utility birds. The Blacks are going ahead fast. Gaining in type and general Leghorn character, they are obviously destined to hold a premier position in the Leghorn family as the dual-purpose variety of the tribe.

Plymouth Rocks still hold sway as general favourites. Fashions in fowls come and go, but the Rocks, particularly the Barred variety, never seem to fade in favour. The Barrs at the "Dairy" were equal to anything ever seen there and the winning Cockerel was a marvel of the Breeders' art. Buffs are annually improving in colour and type. The winning Cockerel was a perfect Rock first and typical colour afterwards. Whites are looking up and deserve more favour than they get from breeders who seek a useful all-round bird.

Indian Game provided the sensation in the Sales, the first and second prize birds—two different owners—making £50 each. The Judge told me he considered the Indian Classes, as a whole, the best he had seen for a long time and I agreed with him. The Bantam Classes, too, were particularly strong.

Buttercups were fairly large classes, but I did not seem to see much advance in this breed. There is too much variation in their general type and character.

*Silkie*s were a typical lot. The winning hen still remains unbeaten. There is an improvement generally in many cases in the much desired "Osprey" plumage in the *Silkie*s shown.

Redcaps were rather more numerous than last year, but still remain in few hands. Those on view were generally typical and well judged, but one wonders this useful breed is not more popular for its utility properties and more largely kept. The tendency, obvious

in the exhibits generally, to reduce the one-time abnormally large comb is a step decidedly in the right direction.

Campines were big classes, full of quality. This breed gradually grows in favour and deservedly so, for it is a grand layer and, for its size and small bone, carries a large amount of flesh of specially fine quality. The 1st prize Silver Cockerel was generally said to be as nearly typical as possible. The Rosecombs are also coming into favour very rapidly in the Silvers. The Golds were good classes generally.

Orloffs are a breed which suffered as much or more than any from the troubles of war-time. They are gradually reviving now that importations of fresh blood are possible and we may hope to soon see the last of the obvious out-crosses used during the war.

Langshans of the tall type called "Modern" seem to very much languish in the hands of the few, though those shown were typical, but many of the Cockerels hardly ready. The Pullets were the better class on the whole.

Ducks.—In several breeds there is probably more advance in these than in any kind of poultry seen at Islington. Indian Runners, Khaki-Campbells and Buff Orpingtons being the most favoured varieties, obviously because these are the heavy laying breeds. The older and some other newer breeds stand much on previous lines.

Geese showed decided improvement, especially in the Embdens.

Turkeys were good in both Bronze and White, the latter showing the most improvement.

Selling Classes, both fowls and waterfowls were well-filled generally, and it struck me I never saw so many people anxious to look them over and make selections.

THE PIGEON SECTION.

By W. S. BROCKLEHURST.

THE forty-fourth Annual Show, held on October 17th, 18th, 19th, and 20th, 1922, though not a record Show was well above the average for the last few years, the total number of entries being 3,208, as compared with 3,272, or 64 entries short of the record show of last year, when was seen the largest number of pigeons ever staged at a Dairy Show.

The general quality was even better than last year and the competition as keen as ever. It was very gratifying to know that although the breeding season as far as pigeons was concerned was a very bad one, we were only 64 entries down on the previous year's record entry. Owing to the very limited space available in the galleries, the Association feel that the number of pigeon entries that can be comfortably dealt with has reached its limit, and, although the staging of the birds is not all that the Committee could wish, they feel that, under the circumstances, they have done the best they can to deal with such a number of entries, with the very limited space at their disposal, and hope that Exhibitors will bear that in mind.

The Pigeon Section is still a very popular one with the general public, judging from the numbers that fill the aisles during the whole show week who come to see the meeting of all the best birds in the country gathered together to compete for the honours and cups offered by the British Dairy Farmers' Association each year.

The winners of the principal trophies offered by the Association for competition this year, are as follows:—

The Gold Medal, offered by the Association for the Best Pigeon in the Show bred in 1922, was awarded to Pen 58, Dr. J. S. Peebles' White Fantail Hen; the Reserve to Pen 2422, Mr. Will Tyler's Show Tippler Dark Mottled Cock.

The Jones Memorial Trophy, for the Best Old Bird in the Show, was awarded to Pen 2196, Mr. G. E. Hope's Blondinette Cock; the Reserve to Pen 1280, Mr. W. Bendall's Long-faced Mottled Tumbler Cock.

The Esquilant Challenge Trophy was awarded to Pen 2422, Mr. Will Tyler's Show Tippler Dark Mottled Cock; the Reserve to Pen 1894, Mr. W. S. Brocklehurst's Blue-barred Schietti Modena Hen.

The Fulton Trophy was awarded to Pen 58, Mr. J. S. Peebles' White Fantail Hen, the Reserve to Pen 2028, Mr. H. Coalston's Red Jacobin Cock.

All the above exhibitors are to be congratulated on having been able to breed and show a pigeon good enough to carry off the most coveted honours in the Pigeon Fancy.

Before describing each variety in detail, I must again point out to the Fancy the great debt of gratitude and thanks they owe to the Chairman of the Poultry and Pigeon Committee, Mr. S. Palgrave Page. His untiring energy and labour in organising and carrying on the work in connection with this section, as well as that of the Poultry, for the benefit of all concerned and also the welfare of the exhibitors, was no light task as things are to-day.

Fantails numbered 165 in 11 classes, a decrease of 16 entries, with an additional class on last year's classification. A great improvement was the introduction of two Judges instead of one in the section this year, which enabled the work to be well in hand when the public were admitted to the galleries. The Association's Gold Medal, for the Best Young Bird in the Show, fell to this variety again this year, the winner being Dr. J. S. Peebles' Young White Fantail Hen, Pen 58, the same Pen being awarded the Fulton Trophy and the Silver Medal of the Association. The Fantails were a much better lot, and a very good lot of young birds were penned this season.

Pouters numbered 31 entries in 3 classes, as compared with 13 entries in one class the previous year, which is an improvement, and getting back to pre-war days, when the Pouter classes were always well filled. There were several very fine specimens of this variety on view.

Pigmy Pouters numbered 146 entries in 13 classes as compared with 128 entries in 12 classes at the 1921 Show, again a good increase on last year's entry, showing that the interest in this very charming variety is still very popular with fanciers. The entry was good, and the average quality much in advance of previous years. The Young Blue Cocks were a big class, but beaten in quality by the Reds, which have improved a lot of late years and were more satisfactory in style. The type is good and also the colour of the Reds. The Whites have also advanced in type a lot, but still lack a good crop so much sought after. The Association's Silver Medal was awarded to Mr. H. N. Leighton's young Black Cock, Pen 244, as well as the Pigmy Pouter Club's Cup, and is a bird of true pigmy pouter type and quality. The addition of a second Judge in this section was a great advantage to the Stewards in getting the work well in hand before the galleries were opened to the public.

Norwich Croppers numbered 92 entries in 5 classes as compared with 61 entries in 4 classes in 1921, an increase of 31 with an additional class. A good improvement on previous years, and the standard of quality was well above the average, the Blacks still showing a great improvement on previous years. The Bronze Medal of the Association was awarded to Mr. H. Whitley's Young Hen, a pigeon of quality.

Carriers numbered 87 in 7 classes as compared with 69 in 5 classes the previous year, which showed a good increase, but still the Carrier entries do not come up as in pre-war days. There are a few good birds of true Carrier type and carriage still to be seen, but we regret

to notice so many birds winning with short broad skulls of the Barb type, instead of the long narrow skull so much sought after by the old Carrier breeders.

The Club's Challenge Cup, for the Best Old Birds, was awarded to Mr. J. Earnshaw's Dun Yearling Cock, Pen 457, and the Club's Challenge Cup for the best Carrier bred in 1922, was awarded to Mr. W. S. Brocklehurst's young Dun Hen, Pen 498, and the same exhibit taking the Association's Bronze Medal for Best Carrier.

Barbs only numbered 10 in the one class as against 7 entries in one class the previous year, and although a little better, it is much to be regretted to see such an old breed fast disappearing. What few birds were penned were of good quality, and as all were young birds, none of the unsightly running-eyed birds were seen, which has done so much harm to the Barb Fancy of late years, the winning young Barb being an exceptionally nice pigeon.

Dragoons, as in past years, turned up well, both in number and quality, there being 385 exhibits in 28 classes, as against 439 exhibits in 32 classes in 1921, and though fewer in number, a better average for class. The Adults and Yearlings were well handled by Mr. H. S. Whitehead, who found he had a somewhat hard morning's work before him, with an average of 12 entries in 16 classes, the Blues and Silvers coming up well and a very prominent lot, Dr. C. H. Tattersall showing a wonderful team of birds in Blue and Silver Cocks, while Mr. E. Proctor showed his well-known silver Adult Hen which is, without doubt, the best Silver living to-day. Mr. F. Smalley showed some very typical Blues. The Grizzles have improved very much in colour and are shorter in feather, also brighter in eyes. Red and Yellows were a very even lot and the Whites were quite a good lot, but nothing very prominent.

Mr. M. C. Marshall also had a full morning's work in handling the 206 young birds entered under him and was much impressed with the general improvement and levelling up of the type of the young birds; whereas in former years two or more birds in a class stood out while the remainder were of inferior type, on this occasion it was noticed that birds excelling in type and quality were in the majority, a feature especially noticeable in the Blues and Chequers. The two outstanding Dragoons in the Young Birds Classes were Mr. T. Wilkinson's Grizzle Cock, Pen 801, a bird of lovely type and quality, and Mr. J. S. Proctor's Blue Hen, Pen 831. The Cup-winners are as follows :—

The George Cotton Cup, for the best Cock bred in 1922, was awarded to Mr. T. Wilkinson's Grizzle Cock, Pen 801.

The George Cotton Cup, for best Hen bred in 1922, was awarded to Mr. J. S. Proctor's Blue Hen, Pen 831.

The Hewitt Challenge Cup for the best White Dragoon bred in 1922, was awarded to Mr. C. Ives' White Cock, Pen 823.

The Challenge Cup, for best Yellow or Red Dragoon of any age, was awarded to Mr. S. Wilkinson's exhibit, Pen 838.

The Association's Silver Medal, for the best Cock bred in 1922, was awarded to Mr. T. Wilkinson's Grizzle Cock, Pen 638.

The Association's Silver Medal, for the best Hen bred in 1922, was awarded to Mr. J. S. Proctor's Blue Hen, Pen 831.

The Association's Bronze Medal was awarded to Mr. C. Ives' White Cock, Pen 823.

Short-faced Tumblers.—This section showed a decrease on last year's entry of 21, there being only 64 entries in seven classes as against 85 entries in the same number of classes the previous Show, although there was a marked improvement in the quality of the birds shown. It is a pity not more are on view of this charming little bird—one of the oldest varieties of our fancy pigeons.

The Association's Silver Medal, for the Best Young Bird bred in 1922, was awarded to Mr. Allen Wilson's Pen 990.

Long-faced Tumbler.—In this section as a whole, the improvement, both in type and quality, was good and well up to Dairy Shows of previous years. Though there was a bigger entry this year, the average was not so good as last year. This year there were 347 entries in 27 classes as against 312 entries in 19 classes in 1921. In the Self Classes, the Blacks were a very level lot, with the exception of a few in the 1922 classes, which showed signs indicating that an out-cross had been used apparently to obtain the requisite substance. The Red Self varied considerably in type, with the exception of the 1922 Hen Class, which was more of the characteristic Tumbler type than any of the others. The Yellow Self, although less in number than either of the foregoing colours, were an extremely level lot, true to type, and possessing more of the Tumbler type than the Black and Reds. The Whites have improved considerably in type and substance and appear to be going well ahead. The Blues and Chequers are still lacking in substance and few possess sufficient rotundity of skull. In the marked variety Tumbler Classes there were 145 entries in 11 classes. The quality was excellent, the competition exceedingly keen, and the type and feather qualities much improved; one or two very good Almonds were very noticeable in the pens. The Tumblers made a very fine show and the Association's Silver Medal went to Mr. W. Bendall's Mottled, Reserve for the Jones' Trophy, Pen 1280.

English Owls.—The entry this year of 65 birds in 7 classes as compared with 86 in 7 classes last year showed a decrease of 21 which is much below the usual average for this variety, but the quality was very good. Type has very much improved in the past two or three years, and the English Owl shown to-day compares very much more favourably for type with that exhibited many years ago, and, in addition, beak and skull properties have been much improved. The Association's Bronze Medal, for the Best Young Bird bred in 1922, was awarded to Mr. H. G. Thompson's young Blue Cock, Pen 1386.

Foreign Owls showed a big drop in numbers as compared with the two previous shows. This year there were 95 in 14 classes; last

year the entry numbered 120 in 11 classes. The average of under seven per class is not very encouraging for an extended classification, such as was given at this year's Show. The tendency for exhibitors to pen exceedingly good-headed birds, but regardless of size of body and length of feather, is spoiling the true type and beauty of the African Owl, which is essentially a very small pigeon. The Whites are not up to the standard of former years, and few birds were shown in anything like good show condition in this section, the inclement summer having delayed the moulting season which may be the reason.

The Association's Silver Medal, for the best 1922-bred bird, was awarded to Mr. W. A. Sharrett's Young Pied Cock, Pen 1480.

Turbits had 71 in eight classes, or three less in the same number of classes as last year. There is still much room for improvement in numbers as compared with the good entry seen at this Show years ago. The quality was quite up to former years, and the Association's Bronze Medal was awarded to Mr. S. Sherwin's Young Black Hen, Pen 1543.

Archangels were down five entries on last year's total with 47 entries in 4 classes. The quality was good and up to the usual standard seen at this Show.

Modenas, as usual, made a very attractive show in themselves and found much favour with the general public visiting the Pigeon Section. Though the entries were 75 down on last year's record total of 461 for any one variety at the Dairy Show, the total of 387 entries in 38 classes was very encouraging for the breeders of this new variety and popularity. The quality was generally good and a great improvement in the correct type was to be noticed amongst the birds from the different lofts; fewer narrow-chested and mean-headed birds were to be seen in the Show pens, and birds of a correct medium size and type were very noticeable, replacing the small weedy type seen a few years ago.

The four Blue Gazzi Classes numbered 70 entries alone, and some very good Blues were to be seen amongst the prize winners.

The Black Gazzi Classes, four in number, had 50 entries and many typical birds were found. The Bronze, Bronze Tri-coloured, and Red Classes have much improved in number and type of birds shown.

The Schittie Classes, 16 in number, had an entry of 142 birds. The improvement in type was very noticeable in the entries in the Blue-barred Classes which secured all the four Schittie Cups, a few very good Red-laced Red Schittie were on view, but there is still room for much improvement in true type and colour in the Schittie Section.

The winners of the Modena Challenge Cups and Association's Silver Medal were, as follows:—

Cup, Best Old Gazzi Cock, Pen 1722, Major Godfrey Heseltine's Black Cock.

Cup, Best Old Gazzi Hen, Pen 1795, Major Godfrey Heseltine's Black Hen.

Cup, Best Young Gazzi Cock, Pen 1692, Mr. A. C. Tattersall's Bronze Tri-coloured Cock.

Cup, Best Young Gazzi Hen, Pen 1675, Mr. W. S. Brocklehurst's Blue Hen.

Cup, Best Old Schietti Cock, Pen 1864, Mr. W. F. Holmes' Blue-barred Cock.

Cup, Best Old Schietti Hen, Pen 1874, Mr. W. S. Brocklehurst's Blue-barred Hen.

Cup, Best Young Schietti Cock, Pen 1882, Mr. W. S. Brocklehurst's Blue-barred Cock.

Cup, Best Young Schietti Hen, Pen 1894, Mr. W. S. Brocklehurst's Blue-barred Hen.

Association's Silver Medal for best 1922-bred Gazzi, Pen 1692, Mr. A. C. Tattersall's Bronze Tri-coloured Cock.

Association's Silver Medal for best 1922-bred Schietti, Pen 1894, Mr. W. S. Brocklehurst's Blue-barred Hen; also Reserve for the Esquilant Trophy.

Jacobins came up a little better than last year, with 60 entries in 6 classes against 57 in 6 classes the previous Show, about the average for the Dairy Show, which is held a bit too early to allow of this breed being in anything like show condition at that time of the year. The birds that were shown were excellent in quality and in advance of previous years. The Association's Bronze Medal was awarded to Pen 2028, Mr. H. Coalston's Red Cock, which was also Reserve for the Fulton Trophy.

Nuns had 67 entries in 4 classes as compared with 84 entries in 3 classes the previous year, a decrease of 17, and a worse average per class; the quality was not so high as in former years, and condition bad, caused undoubtedly through the late bad moulting season; one or two good type birds were to be seen, but in poor condition.

Oriental Frills.—This section showed a decrease on last year's total of 11, there being 142 entries in 14 classes this year. The classes were well filled for this variety, with the exception of one or two which were very poor indeed. The general quality of the birds exhibited were well above the average and it was in this section that the Jones Memorial Trophy winner was found in Mr. G. G. Hope's Blondinette Cock, Pen 2196, a beautiful pigeon, the Oriental Frill Club's Challenge Cup for the Best Adult going to the same exhibit. The Club's Challenge Cup, for the Best Young Pigeon, was awarded to Mr. W. Turton's Black Cock, Pen 2180, the Association's Silver Medal for Best Young Bird, going to the same pen.

Magpies.—This section showed a great improvement on last year, when 110 entries in 11 classes put in an appearance as against 16 in 9 classes the year before. An improvement was noticeable again in the type of the birds shown; the objectionable heavy body cloddiness seems to be disappearing from the show specimen, but there is still too much of the mis-marked variety of the magpie pigeon to be seen in the show pen—this was the general opinion

expressed. The Association's Silver Medal, for Best 1922-bred Bird, was awarded to Messrs. Bracey & Cooke, Pen 2294.

Marthams brought together 28 in two classes, a little better than last year when they numbered 20 in the two classes; still a great variation in type and quality is to be seen.

Show Tipplers.—This new section, which the Association put on at the repeated request of the Tippler Fanciers, I regret to say is not receiving the support it should to encourage the British Dairy Farmers' Association (Pigeon Committee) to continue with these classes, on account of the very limited space at their disposal. We again see a falling off of entries from the previous show; the 1922 Show only produced 21 entries in 3 classes as against 24 in 3 classes the year before. What few birds appeared before the Judge were of good quality and the Esquillant Trophy winner, Mr. W. Tyler's Dark Mottled Cock, Pen 2422, was a wonderful pigeon for soundness of colour and nice balance in markings.

Antwerps.—This section is improving in number and quality, there being 62 entries in 6 classes as against 47 entries last year, and the general condition of the birds showed a great improvement on the previous show, very few decrepid, or wet-eyed and soft-eared birds being noticeable in the adult classes. The young birds were a very good lot and by far the best seen at the Dairy Show for years.

Show Homers.—In the 12 classes provided this year as last, there were 170 entries as against 195 last, a slight falling off of 25 entries and the 1922-bred birds were a poorer lot (with the exception of just one or two) than have ever been found at the Dairy Show in previous years. The old bird classes, however, produced some first-class specimens, of good type, quality and substance, which was so noticeable in the 1921 classes at last year's show. The Club's Trophy was awarded to Mr. J. A. Airey's young Blue Chequer Hen, Pen 2589, which also secured the Association's Silver Medal for the best 1922-bred bird.

Runts.—The one class produced 17 entries as against 10 last year. The general condition and quality was much above the average this year, when shape of head, fineness of cere and compactness of feather was more generally good than usual—a good class all through.

Racing Pigeons are still short of the wonderful record entry of the 1920 Show, when 250 entries in 6 classes made a very fine show in themselves, but beat the 1921 total by 15 entries, there being 215 entries in the 6 classes this year, or an average of one short of 36 birds per class. The general type has much improved, and the true Racing Pigeon type was much in evidence in the classes of exhibits seen at the Dairy Show this year, which were shown in faultless condition.

The Victory Challenge Cup, presented by Lieut.-Col. A. H. Osman for the Best Racing Pigeon, was awarded to Mr. G. Bagnall's young Hen, which has flown at 75 miles during the year. The same exhibit also secured the Association's Silver Medal for the best 1922-bred bird.

Exhibition Flying Homer.—Eight classes this year only brought together 78 entries as against 101 entries last show, a difference of 23, which may be accounted for by the poor breeding season the Fanciers of this bird experienced, and the quality was only moderate, with the exception of one or two of the winners. The Association's Silver Medal, for the Best Exhibition Flying Homer, was awarded to Mr. G. Lait's Blue Chequer Cock, Pen 2923.

Ptarmigan.—These two classes brought together 34 entries this year against 24 last year, which shows that this breed is going ahead, and some good specimens were on view. The shape of head, quality of feather and muffs have much improved, but several nice specimens with too much head were noticeable.

Lavender Ice.—The one class this year has 16 entries as against 18 last year. On the whole they were a nice lot; as several of the exhibits were hardly through the moult, they were not seen to advantage. The most general failing was in the clearness of bars.

Mondanin.—Classes for this Table Pigeon were put on the Dairy Show Schedule for the first time this year, and the result of the two classes was a total of 20 entries; they were not a very striking lot, and few of the birds were in proper condition, and showed great variation of type.

Swifts.—One class was also put on for the first time this year, and brought a total of 11 entries. They were a magnificent lot of most beautiful coloured and feathered pigeons, which should have a future before them when they get into more fanciers' hands.

The Any Other Variety Class had a total of 18 entries, the same as last year. This class always brings together a very striking collection of most beautiful pigeons of the Toy Breeds, as well as other breeds for which classes are not provided at the Show. This year, it was no exception to rule—the Any other Variety Class was a wonderful collection of splendid examples of their respective breeds, and gave the Judge considerable trouble and attention in selecting the winners. It is a pity that this class cannot be divided up in some way.

The Selling Classes.—Eight in number, had a total of 134 entries, which contained many extraordinarily cheap birds of good quality and type of their respective breeds, and it is surprising that more did not change hands than the sales receipts showed.

In concluding my Report, I can only repeat that the great success of the Pigeon Section of the British Dairy Farmers' Association Show is due to the very able help of my Assistant Steward, Mr. H. J. Heppel, and of my other Stewards who assisted me to carry through, I trust, another successful show at the Agricultural Hall, London, to the entire satisfaction of all exhibitors.

My thanks are due to all those Fanciers who acted as my Stewards and Assistant Stewards, for the way they worked to help carry through the Pigeon Section successfully, as well as to our Secretary and his staff, for their assistance and kindly consideration at all times.

AWARD OF PRIZES, DAIRY SHOW, 1922.

DAIRY COWS AND HEIFERS IN MILK.

THE "BLEDISLOE" CHALLENGE TROPHY (offered by LORD BLEDISLOE, K.B.E.), awarded to the Lincolnshire Red Shorthorn Society for the Best Exhibit of good all-round Dairy Cows. The Cows competing for the Trophy were the first six in the Breed Milking Trials, and were considered by the Inspection Judge to be typical specimens of the Breed.

THE "THORNTON" CHALLENGE CUP (offered by Messrs. JOHN THORNTON & CO.), for the Best Group of three Pedigree Shorthorn Cows and/or Heifers upon Inspection only, awarded to Denis Aldridge, for "Merry Maid 5th," "Border Duchess 3rd" and "Border Duchess 2nd."

THE "THORNTON" CHALLENGE CUP (offered by Messrs. JOHN THORNTON & CO.), for the Best Group of three Pedigree British Friesian Cows and/or Heifers upon Inspection only, awarded to James Russel, for "Kingswood Gladys," "Mapleton Elaise" and "Dunnald Iphitus."

SPECIAL PRIZE of £10 (offered by Mr. ROBERT L. MOND, J.P.), and SECOND PRIZE of £5 (offered by the COUNTESS DE LA WARR), for Two Animals the Progeny of any particular Bull awarded respectively to John Evens & Son, for "Burton Red Rose 4th" and "Burton Ruby Spot 14th" (Lincolnshire Red Shorthorns), and Major C. R. Dudgeon, for "Cargen Holm Proud Lady 7th" and "Cargen Holm Miss Rob 9th."

Class 1.—DAIRY SHORTHORN COW.—Entered in or eligible for Coates's Herd Book, or its pedigree sent for such entry previous to the Show, born on or previous to 1st August, 1917.—*First Inspection Prize* (£10), *Second Milking Trial Prize* (£5) to Denis Aldridge, for "Merry Maid 5th." *Second Inspection Prize* (£5) to A. R. Fish, for "Combe Bank Johnby." *Third Inspection Prize* (£3) to A. R. Fish, for "Princess May." *Fourth Inspection Prize* (£2) to Sir Gilbert A. H. Wills, Bart., for "Sweet Clara 2nd." *First Milking Trial Prize* (£10) and the "Desborough" Cup to F. W. Morley, for "Cockermouth Purity." *Third Milking Trial Prize* (£3) to J. G. Peel for "Watercrock Rose."

Class 2.—DAIRY SHORTHORN COW.—Entered in or eligible for Coates's Herd Book, or its pedigree sent for such entry previous to the Show, born after 1st August, 1917, and previous to 1st August, 1919.—*First Inspection Prize* (£5). *First Milking Trial Prize* (£5) and the Shorthorn Society's Prize (£10) to Eustace A. Smith, for "Longhills Melody." *Second Inspection Prize* (£3) to A. J. Hollington, for "Orfold Buttercup 7th." *Third Inspection Prize* (£2) and *Third Milking Trial Prize* (£2) to the Duke of Westminster, G.C.V.O., D.S.O., for "Eaton Dolphinlee Waterloo." *Fourth Inspection Prize* (£1) to Miss Nan Marsland, for "Thurnham Somerset 9th." *Second Milking Trial Prize* (£3) to Capt. A. S. Wills, for "Thornby Ringlet 3rd."

Class 3.—DAIRY SHORTHORN HEIFER.—Entered in or eligible for Coates's Herd Book, born on or after 1st August, 1919. *First Inspection Prize* (£5), *First Milking Trial Prize* (£5), and the Shorthorn Society's Prize (£5) to The Duke of Westminster, G.C.V.O., D.S.O., for "Bare Rosette." *Second Inspection Prize* (£3) to John Jackson, for "Subdorough Favourite 2nd." *Third Inspection Prize* (£2), *Second Milking Trial Prize* (£3) and the Shorthorn Society's Prize (£5) to Capt. T. Allen-Stevens, for "Thurnham Ringlet 12th." *Fourth Inspection Prize* (£1) to Wallace W. Poll, for "Hethersett Snowstorm 3rd." *Third Milking Trial Prize* (£2) to Wallace W. Poll, for "Duncote Gwynne 2nd."

- Class 4.—DAIRY SHORTHORN COW.—Not eligible for Classes 1 and 2.—*First* Inspection Prize (£10) and the Dairy Shorthorn Association's Prize (£10) to J. L. Shirley, for "Charming Lass." *Second* Inspection Prize (£5) to J. L. Shirley, for "Maisey 2nd." *Third* Inspection Prize (£3) and *First* Milking Trial Prize (£10) to W. H. Nelson, for "Lady Wilson." *Fourth* Inspection Prize (£2) to P. R. L. Savill, for "Martha." *Second* Milking Trial Prize (£5) to Nathan Hardman, for "Dolly." *Third* Milking Trial Prize (£3) to The Olympia Agricultural Co., Ltd., for "Muriel."
- Class 5.—DAIRY SHORTHORN HEIFER.—Not eligible for Class 3, born on or after 1st August, 1919. *First* Inspection Prize (£5) and *First* Milking Trial Prize (£5) to J. L. Shirley, for "Pride." *Second* Inspection Prize (£3) to The Olympia Agricultural Co., Ltd., for "Hetty." *Third* Inspection Prize (£2) to A. Stapleton & Sons, Ltd., for "May Queen." *Second* Milking Trial Prize (£3) to A. Stapleton & Sons, Ltd., for "Elmscott Buttercup."
- Class 6.—LINCOLNSHIRE RED SHORTHORN COW.—Entered in or eligible for the Herd Book of the Lincolnshire Red Shorthorn Association.—*First* Inspection Prize (£10) and *Third* Milking Trial Prize (£3) to Lt.-Col. Sir A. G. Weigall, K.C.M.G., for "Langford Queen 4th." *Second* Inspection Prize (£5) to John Evens & Son, for "Burton Cherry 4th." *Third* Inspection Prize (£3) to Lt.-Col. Sir A. G. Weigall, K.C.M.G., for "Petwood Primrose." *First* Milking Trial Prize (£10) to John Evens & Son, for "Burton Ruby Spot 14th." *Second* Milking Trial Prize (£5) to John Evens & Son, for "Burton Red Rose 4th."
- Class 7.—LINCOLNSHIRE RED SHORTHORN HEIFER.—Entered in or eligible for the Herd Book of the Lincolnshire Red Shorthorn Association, born on or after 1st August, 1919.—*First* Inspection Prize (£5) and *Second* Milking Trial Prize (£4) to Lt.-Col. Sir A. G. Weigall, K.C.M.G., for "Langford Damsel 15th." *Second* Inspection Prize (£3) and *First* Milking Trial Prize (£7) to John Evens & Son, for "Burton Hagnaby Gift 2nd." *Third* Inspection Prize (£2) to John Evens & Son, for "Burton Bettina 6th." *Third* Milking Trial Prize (£2) to John Evens & Son, for "Burton Patchy 4th."
- Class 8.—JERSEY COW.—Entered in or eligible for the Herd Book.—*First* Inspection Prize (£7), *First* Milking Trial Prize (£7) and the Blythwood Bowl to Mrs. Evelyn for "Dahlia 4th." *Second* Inspection Prize (£4) to Mrs. Rudd, for "Meadow Vale Pride." *Third* Inspection Prize (£2) to R. Bruce Ward, for "June Louise." *Second* Milking Trial Prize (£4) to G. H. Lindsey-Renton, for "Wootton Alexandra." *Third* Milking Trial Prize (£2) to R. Bruce Ward, for "Piquant."
- Class 9.—JERSEY HEIFER.—Bred in Great Britain or Ireland, entered in or eligible for the Herd Book, born on or after 1st August, 1919.—*First* Inspection Prize (£5) to S. G. Hough, for "Spring Pamela." *Second* Inspection Prize (£3) to R. Bruce Ward, for "Princess Marigold." *Third* Inspection Prize (£2) to R. W. Carson, for "Crystal Fern Lady." *First* Milking Trial Prize (£5) to Col. Lionel G. Gisborne, C.M.G., for "Thyme." *Second* Milking Trial Prize (£3) to H. Cecil Pelly, for "Wotton Boveau." *Third* Milking Trial Prize (£2) to Mrs. Rudd, for "Snow Bird."
- Class 10.—JERSEY HEIFER.—Bred in the Channel Islands, entered in or eligible for the Jersey or English Jersey Herd Book, born on or after 1st August, 1919.—*First* Inspection Prize (£5) to Mrs. Hayes Sadler, for "Bayuda." *Second* Inspection Prize (£3) to J. H. N. Roberts, for "Constance's Sultan's Pride." *Third* Inspection Prize (£2) to O. F. Mosley, for "Original Polly." *First* Milking Trial Prize (£5) to J. H. N. Roberts, for "Duchess of Carita 4th." *Second* Milking Trial Prize (£3) to Major J. R. Warren, for "Britannia's Surprise." *Third* Milking Trial Prize (£2) to H. Cecil Pelly, for "Willonyx Grey Girl."
- Class 11.—GUERNSEY COW.—Entered in or eligible for the Herd Book, born on or previous to 1st August, 1917.—*First* Inspection Prize (£7) to J. B. Body,

for "Lynchmere Rosy of Mauxmarquis 4th." *Second Inspection Prize* (£4) to A. Chester Beatty, for "Masher Girl of the Marais." *Third Inspection Prize* (£2) to A. Chester Beatty, for "Queen 2nd of the Haut Pave." *First Milking Trial Prize* (£7) and the "Stagenhoe" Challenge Cup to A. M. Monteath, for "Polly 2nd of Hillside." *Second Milking Trial Prize* (£4) to O. Portman Rubeck, for "Gipsy of Tregonning." *Third Milking Trial Prize* (£2) to Mrs. R. C. Bainbridge, for "Trequean Maggie 3rd."

Class 12.—GUERNSEY COW.—Entered in or eligible for the Herd Book, born after 1st August, 1917, and previous to 1st August, 1919.—*First Inspection Prize* (£5) and *Third Milking Trial Prize* (£2) to Mrs. R. C. Bainbridge, for "Mawgan Rose." *Second Inspection Prize* (£3) to Mrs. Jervoise, for "Vena 2nd of the Vaux Belets." *Third Inspection Prize* (£2) to O. Portman Rubeck, for "Valencia Saffron." *First Milking Trial Prize* (£5) to A. Thomas Loyd, for "Christine's Duchess." *Second Milking Trial Prize* (£3) to J. B. Body, for "Lynchmere Rosy."

Class 13.—GUERNSEY HEIFER.—Entered in or eligible for the Herd Book, born on or after 1st August, 1919.—*First Inspection Prize* (£5) to Mrs. Jervoise, for "Charmante's Violet 4th." *Second Inspection Prize* (£3) to F. Reed, for "Blue Belle of the Preel." *Third Inspection Prize* (£2) and *Second Milking Trial Prize* (£3) to Sir James F. Remnant, Bart., M.P., for "Emblem's Bluebell." *First Milking Trial Prize* (£5) to the Lady Ludlow, for "Myrtle Lady 2nd of Newgrove." *Third Milking Trial Prize* (£2) to A. M. Monteath, for "Dornden Dairy Girl."

Class 14.—RED POLL COW.—Entered in or eligible for the Herd Book, born on or previous to 1st August, 1917.—*First Inspection Prize* (£7) to the Exors. of the late Lord Manton, for "Kitchener's Daffodil 3rd." *Second Inspection Prize* (£4), *Second Milking Trial Prize* (£4) and the Red Poll Cattle Society's Prize (£5) to Lt.-Col. Sir Merrick R. Burrell, Bart., C.B.E., for "Knepp Primrose 4th." *Third Inspection Prize* (£2) to Lt.-Col. Sir Merrick R. Burrell, Bart., C.B.E., for "Miss Sybil 13th." *First Milking Trial Prize* (£7) to M. C. Pilkington, for "Harefield Ruth." *Third Milking Trial Prize* (£2) to J. B. Dimmock, for "Gressenhall Wild Girl."

Class 15.—RED POLL COW.—Entered in or eligible for the Herd Book, born after 1st August, 1917, and previous to 1st August, 1919.—*First Inspection Prize* (£7) to J. B. Dimmock, for "Shotford Star Duchess 121st." *Second Inspection Prize* (£4) to the Exors. of the late Lord Manton, for "Sudbourne Mary." *Third Inspection Prize* (£2) to A. Carlyle Smith, for "Ashmoor Patricia." *First Milking Trial Prize* (£7) to Felix W. Leach, for "Meddler Merrythought." *Second Milking Trial Prize* (£4) to Sir Albert E. Bowen, Bart., for "Gressenhall Margate." *Third Milking Trial Prize* (£2) to Mrs. R. M. Foot, for "Harefield Dawn."

Class 16.—RED POLL HEIFER.—Entered in or eligible for the Herd Book, born on or after 1st August, 1919.—*First Inspection Prize* (£5) and one-third of the Red Poll Cattle Society's Prize (£5) to Major J. A. Morrison, D.S.O., for "Basildon Rosebud." *Second Inspection Prize* (£3) to W. Woodgate, for "Woolpit Bess." *Third Inspection Prize* (£2) to A. Carlyle Smith, for "Ashmoor Flop." *First Milking Trial Prize* (£5) and one-third of the Red Poll Cattle Society's Prize (£5) to M. C. Pilkington, for "Hutton Dahlia 2nd." *Second Milking Trial Prize* (£3) and one-third of the Red Poll Cattle Society's Prize (£5) to M. C. Pilkington, for "Hutton Retreat." *Third Milking Trial Prize* (£2) to Capt. F. W. Winterbotham, for "Hutton Ruth."

Class 17.—DEVON COW.—Entered in or eligible for the Herd Book, or entered in the Supplemental Register of such Herd Book.—*First Inspection Prize* (£7) to W. D. Chick, for "Lovely 4th." *Second Inspection Prize* (£4) and *First Milking Trial Prize* (£7) to N. D. Lupton, for "Wynford Molly." *Third Inspection Prize* (£2) and *Third Milking Trial Prize* (£3) to W. G. Busk, for "Stratton Tottie 5th." *Second Milking Trial Prize* (£4) to J. H. Chick, for "Wynford Laburnum."

Class 18.—SOUTH DEVON COW.—Entered in or eligible for the Herd Book.—*First Inspection Prize (£7), First Milking Trial Prize (£7) and the South Devon Herd Book Society's Prize (£5) to W. Hunt, for "Netton Lily." Second Inspection Prize (£4) and Second Milking Trial Prize (£4) to George Banbury, for "Milkaway." Third Inspection Prize (£2) to W. L. Hosking & Sons, for "Fentongollan Stella."*

Class 19.—AYRSHIRE COW.—*First Inspection Prize (£7), First Milking Trial Prize (£7) and the "Rowallan" Champion Cup to Alex. Y. Allan, for "Aitkenbar Mabel 2nd." Second Inspection Prize (£4) and Second Milking Trial Prize (£4) to James Howie, for "Molly." Third Inspection Prize (£2) to John Cochrane, for "Byreholm Viper." Fourth Inspection Prize (£1) to James Howie, for "Kate." Third Milking Trial Prize (£2) to J. S. Murray, for "Carston Helen."*

Class 20.—AYRSHIRE HEIFER.—Registered or eligible for registration with a number in the Herd Book, or in the Appendices, born on or after 1st August, 1919.—*First Inspection Prize (£5) and First Milking Trial Prize (£5) to William Murdock, for "Buntonhill Eunice 2nd." Second Inspection Prize (£3) to Mrs. H. Cranford, for "Dunlop Barmaid." Third Inspection Prize (£2) and Second Milking Trial Prize (£3) to A. W. Montgomerie, for "Lessnessock Dandy 5th." Fourth Inspection Prize (£1) to A. & A. Kirkpatrick, for "Barr Dairymaid." Third Milking Trial Prize (£2) to Quintin Dunlop, junr., for "Greenan Ann."*

Class 21.—KERRY COW.—Entered in or eligible for the Herd Book.—*First Inspection Prize (£5) to The Countess De La Warr, for "Buckhurst Pearl." Second Inspection Prize (£3) and Second Milking Trial Prize (£2) to John W. Towler, for "Ardeaein Prune." Third Inspection Prize (£2) to the Elmhurst Farming & Trading Co., Ltd., for "Elmhurst Daffodil." First Milking Trial Prize (£3) and the English Kerry and Dexter Society's Challenge Cup, to John W. Towler, for "Flora of Carton." Third Milking Trial Prize (£1) to Lawrence Currie, for "Minley Winnie."*

Class 22.—KERRY HEIFER.—Entered in or eligible for the Herd Book, born on or after 1st August, 1919.—*First Inspection Prize (£4) to John W. Towler, for "Wadlands Alma." Second Inspection Prize (£3) and First Milking Trial Prize (£4) to Capt. Nelson Zambra and C. Williamson Milne, for "Hattingley Haughty." Third Inspection Prize (£2) to Muriel, Countess De La Warr, for "Bluerock of Warren." Fourth Inspection Prize (£1) to Muriel, Countess De La Warr, for "Moonlight of Warren."*

Class 23.—DEXTER COW.—Entered in or eligible for the Herd Book.—*First Inspection Prize (£5), First Milking Trial Prize (£5) and the "Nutt" Challenge Cup to Alfred C. King, for "La Mancha Madeline." Second Inspection Prize (£3) to J. Duckworth Hodgson, for "Eta." Third Inspection Prize (£2) to Alfred C. King, for "Slane Black Sally." Fourth Inspection Prize (£1) to Lady Kathleen Hare, for "Brokenhurst Mignonette."*

Class 24.—DEXTER HEIFER.—Entered in or eligible for the Herd Book, born on or after 1st August, 1919.—Cancelled.

Class 25.—BRITISH FRIESIAN COW.—Entered in or eligible for the Herd Book, born on or previous to 1st August, 1917.—*First Inspection Prize (£10), Third Milking Trial Prize (£3) and the "Spencer" Challenge Cup to James Russel, for "Kingswood Gladys." Second Inspection Prize (£5) to W. & R. Wallace, for "Kingswood Dawn Mist." Third Inspection Prize (£3) to A. & J. Brown, for "Moss Peggy." Fourth Inspection Prize (£1) to The Longford Farms, Ltd., for "Hedge's Dutch Stately." First Milking Trial Prize (£10) and the "Barham" Challenge Cup to A. & J. Brown, for "Hedge's Dutch Gossip." Second Milking Trial Prize (£5) and the "Shirley" Challenge Cup to G. Holt-Thomas, for "Blackmore Ena 2nd."*

Class 26.—BRITISH FRIESIAN COW.—Entered in or eligible for the Herd Book, born after 1st August 1917, and previous to 1st August, 1919.—*First Inspection Prize* (£5) to James Russel, for "Dunnald Iphitus." *Second Inspection Prize* (£3) to Capt. R. G. Buxton, for "Petygard's Countess." *Third Inspection Prize* (£2) to Lt.-Col. W. E. Harrison, for "Wychnor Pansy 2nd." *Fourth Inspection Prize* (£1) to F. & T. Neame, for "Macknade Endaw." *First Milking Trial Prize* (£5) to W. & R. Wallace, for "Hadham Duchess." *Second Milking Trial Prize* (£3) to G. Holt-Thomas, for "Beccles Silver Queen." *Third Milking Trial Prize* (£2) to G. Holt-Thomas, for "Cymric St. Malo."

Class 27.—BRITISH FRIESIAN HEIFER.—Entered in or eligible for the Herd Book, born on or after 1st August, 1919.—*First Inspection Prize* (£5) to A. & J. Brown, for "Hedge's Bles Fairy." *Second Inspection Prize* (£3) and *Third Milking Trial Prize* (£2) to A. & J. Brown, for "Hedge's Blesrigg Princess 4th." *Third Inspection Prize* (£2) and *Second Milking Trial Prize* (£3) to The Hache Herd, for "Hache Teelt." *Fourth Inspection Prize* (£1) to G. T. Eaton, for "Thurston Eve." *First Milking Trial Prize* (£5) to G. T. Eaton, for "Thurston Evelyn."

Class 28.—WELSH BLACK COW.—Entered in or eligible for the Herd Book.—*First Inspection Prize* (£7) and *Second Milking Trial Prize* (£4) to N. L. Moon, for "Sianet O'r Bryn." *Second Inspection Prize* (£4) to The University College of North Wales, for "Snowdon Rose." *Third Inspection Prize* (£2) to The University College of North Wales, for "Purren 7th of Vaynol." *Fourth Inspection Prize* (£1) and *First Milking Trial Prize* (£7) to C. W. Crompton, for "Glyn Ethel."

MILK RECORDED COWS.

(Inspection only.)

Class 29.—DAIRY SHORTHORN COW.—Entered in or eligible for Coates's Herd Book, or its pedigree sent for such entry previous to the Show.—Yield 8,000 lbs. and over in one year.—*First Prize* (£7) to Denis Aldridge, for "Merry Maid 5th." *Second Prize* (£4) to A. R. Fish, for "Combebank Johnby." *Third Prize* (£2) to Eustace A. Smith, for "Longhills Melody." *Fourth Prize* (£1) to Sir Gilbert A. H. Wills, Bart., for "Sweet Clara 2nd."

Class 30.—DAIRY SHORTHORN COW.—Entered in or eligible for Coates's Herd Book, or its pedigree sent for such entry previous to the Show.—Yield not under 6,500 lbs. for two consecutive years, but less than 8,000 lbs. yearly.—*First Prize* (£7) to A. R. Fish, for "Princess May."

Class 31.—FOUNDATION SHORTHORN COW.—Entered in or eligible for the Dairy Shorthorn's Association Herd Book.—Yield 8,000 lbs. and over in one year.—*First Prize* (£7) to J. L. Shirley, for "Charming Lass." *Second Prize* (£4) to J. L. Shirley, for "Pretty Maid 2nd." *Third Prize* (£2) to J. L. Shirley, for "Maisey 2nd."

Class 32.—FOUNDATION SHORTHORN COW.—Entered or eligible for the Dairy Shorthorn Association's Herd Book.—Yield not under 6,500 lbs. for two consecutive years, but less than 8,000 lbs. yearly.—*First Prize* (£7) to N. Hardman, for "Dolly."

Class 33.—BRITISH FRIESIAN COW.—Entered in or eligible for the Herd Book.—Yield 8,000 lbs. and over in one year.—*First Prize* (£7) to G. T. Eaton, for "Petygard's Circus." *Second Prize* (£4) to Capt. R. G. Buxton, for "Petygard's Countess." *Third Prize* (£2) to Lt.-Col. W. E. Harrison, for "Wychnor Pansy 2nd." *Fourth Prize* (£1) to James Russel, for "Kingswood Gladys."

Class 34.—BRITISH FRIESIAN COW.—Entered in or eligible for the Herd Book.—Yield not under 6,500 lbs. for two consecutive years, but less than 8,000 lbs. yearly.—*First Prize* (£7) to A. & J. Brown, for "Moss Peggy."

Class 35.—COW OF ANY OTHER PURE BREED.—Entered in or eligible for its respective Herd Book.—Yield 6,500 lbs. and over.—*First Prize* (£7) to Lt.-Col. Sir A. G. Weigall, K.C.M.G., for “Langford Queen” (Lincolnshire Red Shorthorn). *Second Prize* (£4) to John Cochrane, for “Byreham Viper” (Ayrshire). *Third Prize* (£2) to John Evens & Son, for “Burton Cherry 4th” (Lincolnshire Red Shorthorn).

Class 36.—COW, NON-PEDIGREE OR CROSS BRED.—Yield 6,500 lbs. and over.—*First Prize* (£7) to Sir Edward E. Pearson, for “Sowerby Elsie” (Shorthorn).

COWS OF ANY BREED OR CROSS, IN MILK.

(Inspection only.)

Class 37.—PAIR OF COWS.—*First Prize* (£20) to Denis Aldridge, for “Daisy Princess” and “Border Duchess 2nd” (Shorthorns). *Second Prize* (£15) to W. H. Nelson, for “Pearl” and “Doris” (Shorthorns). *Third Prize* (£10) to N. Hardman, for “Primrose” and “Buttercup” (Shorthorns).

Class 38.—SINGLE COW.—*First Prize* (£10) to J. L. Shirley, for “Pretty Maid 2nd” (Shorthorn). *Second Prize* (£7) to W. H. Phipps, for “Betty” (Shorthorn). *Third Prize* (£5) to N. Hardman, for “Fillpail” (Shorthorn). *Fourth Prize* (£3) to A. Stapleton & Sons, Ltd, for “Elmscott Daisy” (Shorthorn). *Fifth Prize* (£2) to Welford & Co. (Dairy Farmers), Ltd., for “Primrose” (Shorthorn).

BUTTER TESTS.

SHORTHORNS, entered in Classes 1, 2, 3, 4, 5, 6, and 7.—*First Prize* (£10 and Silver Medal) to John Evens & Son, for “Burton Red Rose 4th.” *Second Prize* (£5 and Bronze Medal) and the George Bateman Nelson (Coronation) Challenge Cup to F. W. Morley, for “Cockerham Purity.” *Third Prize* (£3) to John Evens & Son, for “Burton Ruby Spot 14th.” *Fourth Prize* (£2) to The Duke of Westminster, G.C.V.O., D.S.O., for “Cherry Bud 6th.”

JERSEYS, entered in Classes 8, 9 and 10.—*First Prize* (£5 and Gold Medal) to R. Bruce Ward, for “Piquant.” *Second Prize* (£3 and Silver Medal) to George Cross, for “Nimrod’s Dinah 4th.” *Third Prize* (£2 and Bronze Medal) to H. A. Rigg, for “Lily.” Certificate of Merit to E. A. Strauss, for “Kingston Fairy”; Mrs. Evelyn, for “Dahlia 4th”; J. Pierpont Morgan, for “Willa Kingsway 2nd”; G. H. Lindsey-Renton, for “Wotton Alexandra”; George Cross, for “Yellow Wort”; George Cross, for “Naanah”; H. A. Rigg, for “Dewdrop”; Mrs. Rudd, for “Pink Pill 2nd”; H. C. Pelly, for “Wotton Boveau”; Mrs. Rudd, for “Snow Bird”; Col. L. Gisbourne, C.M.G., for “Thyme”; J. H. N. Roberts, for “Duchess of Carita 4th.”

RED POLLS, entered in Classes 14, 15, and 16.—*First Prize* (£5) to M. C. Pilkington, for “Harefield Ruth.” *Second Prize* (£3) to Felix W. Leach, for “Meddler Merrythought.”

ANY OTHER BREED, entered in Classes 11, 12, 13, and 17 to 28, inclusive.—Prizes of £3 each to A. M. Monteath, for “Polly 2nd of Hillside” (Guernsey); J. H. Chick, for “Wynford Laburnum” (Devon); W. Hunt, for “Netton Lily” (South Devon); J. Cochrane, for “Byreholm Viper” (Ayrshire); Muriel, Countess De La Warr, for “Buckhurst Surprise” (Kerry); J. Russel, for “Kingswood Gladys” (British Friesian); C. W. Crompton, for “Glyn Ethel” (Welsh Black). Prizes of £2 each to O. Portman Rubeck, for “Gipsy of Tregonning” (Guernsey); N. D. Lupton, for “Wynford Molly” (Devon); G. Banbury, for “Milkaway” (South Devon); A. W. Montgomerie, for “Lessnessock Dandy 5th” (Ayrshire); G. Holt-Thomas, for “Cymric Cheeky” (British Friesian).

Gold Medal offered by the English Kerry and Dexter Cattle Society awarded to Muriel, Countess de La Warr, for “Buckhurst Surprise.”

BULLS.

- Class 39.—DAIRY SHORTHORN BULL.—Entered in or eligible for Coates's Herd Book, born previous to 1st August, 1920.—*First Prize* (£10) to The Duke of Westminster, G.C.V.O., D.S.O., for "Baron's Pride." *Second Prize* (£5) to Lt.-Col. F. H. D. C. Whitmore, C.M.G., D.S.O., for "Kelmscott Imperialist 26th." *Third Prize* (£3) to The Earl of Derby, K.G., for "Knowsley Carol Dolphin." *Fourth Prize* (£2) to The Earl of Sandwich, for "Babraham Surveyor."
- Class 40.—DAIRY SHORTHORN BULL.—Entered in or eligible for Coates's Herd Book, born on or after 1st August, 1920.—*First Prize* (£10) to Capt. Hon. E. A. Fitzroy, for "Foxhill Caryl." *Second Prize* (£5) to G. Bickford, for "Somerford Duke." *Third Prize* (£3) to R. N. Tory, for "Anderson Priceless Bates." *Fourth Prize* (£2) to The Duke of Westminster, G.C.V.O., D.S.O., for "Eaton Diamond Gift."
- Class 41.—JERSEY BULL.—Entered in or eligible for the Herd Book, born on or after 1st August, 1919.—*First Prize* (£10) to R. Bruce Ward, for "Canterbury Pilgrim." *Second Prize* (£5) to Brig.-Gen. J. T. Wigan, C.B., C.M.G., D.S.O., for "Wooton Vervain's Moonlight."
- Class 42.—BRITISH FRIESIAN BULL.—Entered in or eligible for the Herd Book, born on or after 1st August, 1920.—*First Prize* (£5) to H. G. Howard, for "Sudbourne Bertus 2nd." *Second Prize* (£3) to G. B. Radcliffe, for "Tarvin (imported 1922) Mazeppa." *Third Prize* (£2) to James Russel, for "Mapleton (imported 1922) Helko."
- Class 43.—BULL OF ANY PURE BREED (not eligible for Classes 39, 40, 41, and 42).—Entered in or eligible for its respective Herd Book, born previous to 1st August, 1921.—Silver Medal to T. Brown & Son, for "Marham Plantagenet" (Red Poll); W. F. Trumper, for "Ivanhoe of les Grantes" (Guernsey); Lt.-Col. R. E. Cecil, for "Thornhill Paragon" (Ayrshire); W. H. Case, for "Knebworth Ynte's Bold Boy" (British Friesian).

SHE-GOATS.

MILKING COMPETITION FOR GOATS OF ANY VARIETY.

- Class 44.—She-Goats qualified as "Star or 'Q' Star Milkers."—*First Prize* (£2 and Silver Medal), the "Tremedda Selene" Challenge Cup and the "Dewar" Challenge Trophy to Miss Pope, for "Problem of Bashley" (Anglo-Nubian-Swiss). *Second Prize* (£1) to Mrs. A. Abbey, for "Didgemere Dulcie" (British Alpine). *Third Prize* (10s.) to Mrs. A. Abbey, for "Tremedda Lidia" (British Toggenburg).
- Class 45.—SHE-GOATS not eligible for Class 44.—*First Prize* (£2 and Silver Medal) to Mrs. Morcom, for "Leazes Fortitude" (British Saanen). *Second Prize* (£1) to Miss C. Booth, for "Springfield Pierette" (Anglo-Nubian-Swiss). *Third Prize* (10s.) to Mrs. Cammack, for "Keighley Idabel" (Anglo-Nubian-Swiss).

INSPECTION CLASSES. 1

- Class 46.—SHE-GOATS, TOGGENBURG, entered in the Toggenburg Section of the Herd Book, or eligible for entry therein.—*First Prize* (£2) and the "Straker" Challenge Cup to Mrs. J. C. Straker, for "Leazes Hackee." *Second Prize* (£1) to Miss M. Henderson, for "Riding Cherry." *Third Prize* (10s.) to Miss M. Henderson, for "Leazes Cornel."
- Class 47.—SHE-GOATS, BRITISH TOGGENBURG.—*First Prize* (£2) to E. A. Walmisley, for "Lady Annette." *Second Prize* (£1) to Mrs. A. Abbey, for "Tremedda Lidia." *Third Prize* (10s.) to Mrs. H. Potton, for "Rayleigh Primrose."

- Class 48.—SHE-GOATS, BRITISH ALPINE.—*First Prize* (£2) and The British Goat Society's Challenge Cup to Mrs. A. Abbey, for "Didgemere Dulcie." *Second Prize* (£1) to Mrs. A. Abbey, for "Preference." *Third Prize* (10s.) to Mrs. A. Abbey, for "Tremedda Lalage 2nd."
- Class 49.—SHE-GOATS, BRITISH SAANEN.—*First Prize* (£2) to Mrs. Morecom, for "Leazes Fortitude." *Second Prize* (£1) to Mrs. Chetwode, for "Leazes Trefoil." *Third Prize* (10s.) to Mrs. R. Egerton, for "Helen of Holt."
- Class 50.—SHE-GOATS, ANGLO-NUBIAN, being any Goat entered in the Anglo-Nubian Section of the Herd Book, or eligible for entry therein.—*First Prize* (£2) and the "Pomeroy" Challenge Cup to Miss K. Pelly, for "Nash Bella." *Second Prize* (£1) to Miss K. Pelly, for "Theydon Annette." *Third Prize* (10s.) to Miss K. Pelly, for "Nash Baroness."
- Class 51.—SHE-GOAT, ANY OTHER VARIETY, not eligible for previous Classes.—*First Prize* (£2) and the "Baroness Burdett-Coutts" Challenge Cup to Miss Pope, for "Problem of Bashley" (Anglo-Nubian-Swiss). *Second Prize* (£1) to Mrs. H. Potton, for "Rayleigh Harebell" (Anglo-Nubian-Swiss). *Third Prize* (10s.) to E. A. Walmisley, for "Atherstone Faith" (Anglo-Nubian-Swiss).
- Class 52.—SHE-GOATS that are recorded under a recognised Milk Recording Society.—*First Prize* (£2) to Miss Pope, for "Problem of Bashley" (Anglo-Nubian-Swiss). *Second Prize* (£1) to Mrs. H. Potton, for "Rayleigh Primrose" (British Toggenburg). *Third Prize* (10s.) to Mrs. H. Potton, for "Rayleigh Harebell" (Anglo-Nubian-Swiss). *Fourth Prize* (5s.) to E. A. Walmisley, for "Atherstone Faith" (Anglo-Nubian-Swiss).
- Class 53.—GOATLINGS, TOGGENBURG AND BRITISH TOGGENBURG.—Over one year and not exceeding two years.—*First Prize* (£2) to Mrs. A. Abbey, for "Didgemere Doughnut" (British Toggenburg). *Second Prize* (£1) and Special Prize (£1) offered by Mr. B. Ravenscroft, to Mrs. H. Maurice, for "Ridgeway Rosalind" (British Toggenburg).
- Class 54.—GOATLINGS, BRITISH ALPINE.—Over one year, but not exceeding two years.—*First Prize* (£2) to Mrs. A. Abbey, for "Didgemere Doreen." *Second Prize* (£1) to E. A. Walmisley, for "Atherstone Pandora." *Third Prize* (10s.) and Special Prize (£1), offered by Mr. B. Ravenscroft, to Mrs. A. Abbey, for "Didgemere Dawdler."
- Class 55.—GOATLINGS, BRITISH SAANEN.—Over one year, but not exceeding two years.—*First Prize* (£2) and Special Prize (£1) offered by Mr. B. Ravenscroft, to Miss Pope, for "Cintra Pepita." *Second Prize* (£1) to Miss C. Chamberlain, for "Welfare of Westons." *Third Prize* (10s.) to E. A. Walmisley, for "Atherstone Collette."
- Class 56.—GOATLINGS, ANGLO-NUBIAN.—Entered in or eligible for entry in the Anglo-Nubian Section of the Herd Book.—Over one year, but not exceeding two years.—*First Prize* (£2) and Special Prize (£1) offered by Mr. B. Ravenscroft, to Miss K. Pelly, for "Theydon Tangerina." *Second Prize* (£1) to Mrs. R. Pease, for "Sadberge Goldfinch." *Third Prize* (10s.) to Mrs. R. Pease, for "Sadberge Kingfisher."
- Class 57.—GOATLINGS, ANY OTHER VARIETY.—Not eligible for previous Colasses.—Over one year, but not exceeding two years.—*First Prize* (£2) to Mrs. A. Abbey, for "Didgemere Dancer" (Anglo-Nubian-Swiss). *Second Prize* (£1) and Special Prize (£1), offered by Mr. B. Ravenscroft, to E. A. Walmisley for "Atherstone Madcap" (Anglo-Nubian-Swiss). *Third Prize* (10s.) to E. A. Walmisley, for "Atherstone Joy" (Anglo-Nubian-Swiss).

CHEESE.

- Class 58.—STILTON (6 Cheeses).—*First Prize* (£7) to The Long Clawson Dairy, Ltd. *Second Prize* (£4) to Tuxford & Nephews. *Third Prize* (£2) to The United Dairies (Wholesale), Ltd.

- Class 59.—STILTON (36 Cheeses).—*First Prize* (£10 and Silver Medal) to The United Dairies (Wholesale), Ltd. *Second Prize* (£5) to Tuxford & Nephews. *Third Prize* (£3) to The Long Clawson Dairy, Ltd.
- Class 60.—CHEDDAR TRUCKLES (6 Cheeses).—*First Prize* (£5) to A. H. Stevenson. *Second Prize* (£3) to A. Cochran. *Third Prize* (£2) to H. H. Pickford.
- Class 61.—CHEDDAR (4 Cheeses).—*First Prize* (£5), the "Fullwood & Bland" Challenge Cup and the "Viking" Challenge Cup to A. H. Stevenson. *Second Prize* (£4) to A. Cochran. *Third Prize* (£3) to A. W. Montgomerie. *Fourth Prize* (£2) to T. Logan. *Fifth Prize* (£1) to A. & W. Wyllie. The "Hansen" Challenge Trophy to The Fenwick Farmers' Co-operative Dairy Association, Ltd.
- Class 62.—CHEDDAR (20 Cheeses).—*First Prize* (£15 and Silver Medal) to A. W. Montgomerie. *Second Prize* (£10) to A. H. Stevenson. *Third Prize* (£7) to W. Hunter. *Fourth Prize* (£5) to A. Cochran. *Fifth Prize* (£3) to A. & W. Wyllie.
- Class 63.—COLONIAL CHEDDAR, Coloured or Uncoloured (4 Cheeses not less than 60 lbs. each).—*First Prize* (Gold Medal) and the "Hansen" Challenge Trophy; to J. T. Moxham. *Second Prize* (Silver Medal) to Benson Avery. *Third Prize* (Bronze Medal) to The Erinna Co-operative Cheese Factory Co., Ltd.
- Class 64.—CHESHIRE (20 Cheeses).—*First Prize* (£15) and the "Fullwood & Bland" Challenge Cup to J. T. Pye. *Second Prize* (£10) to P. Sumner. *Third Prize* (£7) to The Ruyton Co-operative Dairies Ltd., *Fourth Prize* (£5) to F. A. Moore. *Fifth Prize* (£3) to G. E. Richards.
- Class 65.—CHESHIRE (4 Coloured Cheeses, not less than 40 lbs. each).—*First Prize* (£7) to J. T. Pye. *Second Prize* (£4) to F. A. Moore. *Third Prize* (£2) to C. F. Hobson.
- Class 66.—CHESHIRE (4 Uncoloured Cheeses, not less than 40 lbs. each).—*First Prize* (£7) to J. T. Pye. *Second Prize* (£4) to P. Fearnal. *Third Prize* (£2) to G. E. Richards.
- Class 67.—CHESHIRE (4 Cheeses, not less than 40 lbs. each).—Open only to those who have never won a Prize for Cheshire Cheese at any Dairy Show.—*First Prize* (£5) to P. Sumner. *Second Prize* (£3) to H. O. Williamson. *Third Prize* (£2) to J. T. Fortnam.
- Class 68.—LEICESTER (4 Cheeses). *First Prize* (£4) to the East Anglian Institute of Agriculture. *Second Prize* (£3) to The British Dairy Institute. *Third Prize* (£2) to F. W. Tomlinson.
- Class 69.—LANCASHIRE (4 Cheeses).—*First Prize* (£4) to S. Salthouse. *Second Prize* (£3) to The British Dairy Institute. *Third Prize* (£2) to H. Whittingham.
- Class 70.—DERBY (4 Uncoloured Cheeses, not less than 25 lbs. each).—*First Prize* (£4) to The British Dairy Institute. *Second Prize* (£3) to The Gratton Cheese Factory Association. *Third Prize* (£2) to F. W. Gilbert, Ltd.
- Class 71.—FACTORY CHEESE.—To be manufactured at and exhibited by a recognised Cheese Factory dealing with a minimum of 500 gallons of milk daily (10 Cheeses, any Variety, not less than 28 lbs. each).—*First Prize* (£7) to The Fenwick Farmers' Co-operative, Ltd. *Second Prize* (£4) to Platt & Swain. *Third Prize* (£2) to F. W. Gilbert, Ltd. *Fourth Prize* (£1) to The United Dairies (Wholesale), Ltd.
- Class 72.—DOUBLE GLOSTER (4 Cheeses, from 26 lbs. to 30 lbs. each, total weight not to exceed 120 lbs.).—*First Prize* (£4) to F. Portch. *Second Prize* (£3) to E. F. Jones. *Third Prize* (£2) to H. Lear.
- Class 73.—SINGLE GLOSTER (4 Cheeses, from 13 lbs. to 15 lbs. each, total weight not to exceed 60 lbs.).—*First Prize* (£4) to The Gloucester Dairy Supply, Ltd. *Second Prize* (£3) to E. F. Jones. *Third Prize* (£2) to H. Lear.

Class 74.—CAERPHILLY (4 Cheeses, not exceeding 8 lbs. each).—*First Prize* (£4) to The British Dairy Institute. *Second Prize* (£3) to The Gloucester Dairy Supply, Ltd. *Third Prize* (£2) to Cox & Sons.

Class 75.—WENSLEYDALE (6 Cheeses, Blue-moulded).—*First Prize* (£4) to A. Rowntree. *Second Prize* (£3) to The British Dairy Institute. *Third Prize* (£2) to A. Rowntree.

Class 76.—SMALLHOLDER PRESSED, Quick Ripening (2 Cheeses under 8 lbs., but over 4 lbs. each).—*First Prize* (£2) to Mrs. A. Blatchford. *Second Prize* (£1) to L. V. V. Holman. *Third Prize* (10s.) to Miss M. V. George. *Fourth Prize* (5s.) to Miss A. Symons.

Class 77.—SMALLHOLDER PRESSED, Long Keeping (2 Cheeses, under 8 lbs., but over 4 lbs. each).—*First Prize* (£2) and The McWilliam Silver Fruit Dish to Miss E. Dyer. *Second Prize* (£1) to Mrs. A. Blatchford. *Third Prize* (10s.) to Miss L. M. Browning. *Fourth Prize* (5s.) to Miss V. Jones.

Class 78.—SMALLHOLDER PRESSED, Quick Ripening (2 Cheeses, not exceeding 4 lbs. each).—*First Prize* (£2) to Miss Ivy White. *Second Prize* (£1) to Miss W. Fuller. *Third Prize* (10s.) to L. V. V. Holman. *Fourth Prize* (5s.) to Cox & Sons.

Class 79.—SMALLHOLDER PRESSED, Long Keeping (2 Cheeses, not exceeding 4 lbs. each). *First Prize* (£2) to Miss W. Fuller. *Second Prize* (£1) to Miss E. M. Madge. *Third Prize* (10s.) to Mrs. E. W. Evans. *Fourth Prize* (5s.) to Mrs. A. Blatchford.

Class 80.—SMALL PRESSED, Quick Ripening (4 Cheeses, made at home, not exceeding 8 lbs. each).—Open to pupils who have attended County Travelling Cheese Schools during 1921 or 1922.—*First Prize* (£3) to L. V. V. Holman. *Second Prize* (£2) to Miss S. M. Bersey. *Third Prize* (£1) to A. Cray. *Fourth Prize* (10s.) to Miss Ivy White.

Class 81.—SMALL PRESSED, Long Keeping (4 Cheeses, made at home, not exceeding 8 lbs. each).—Open to pupils who have attended County Travelling Cheese Schools during 1921 or 1922.—*First Prize* (£3) and the "Walker" Challenge Cup to L. V. V. Holman. *Second Prize* (£2) to Miss L. M. Browning. *Third Prize* (£1) to Miss W. Morris. *Fourth Prize* (10s.) to Miss E. Dyer.

Class 82.—INTER-COUNTY COMPETITION. FOR THE BEST COLLECTION OF SMALLHOLDER CHEESES made by the persons who have received instruction in Cheesemaking at a County Council Travelling Cheese School during 1919-1922. The Head Teacher or County Organiser in each County to make the entry, which shall consist of six individual Competitors whose names shall be stated at the time of entry. Each Competitor's Exhibit shall consist of four cheeses of not more than 8 lbs. each in weight, and the number of distinct varieties and types are taken into consideration when making Awards. The prizes to be allocated: One half to the successful Competitors and one half to the County Teacher or Teachers. A Certificate of Merit will be awarded by The British Dairy Farmers' Association to each individual competitor receiving a Prize.

First Prize (the "Inter-County" Challenge Shield and (£10) to Somersetshire:—

Miss D. G. Saker (Instructress).

Miss Browning.

Miss Fuller.

Miss Salmon.

Miss Baber.

Miss George.

Miss Smart.

Second Prize (£5) to Montgomeryshire:—

Miss M. J. Williams (Instructress).

Miss O. Davies.

Miss V. Jones.

Miss A. Roberts.

Miss D. Green.

Miss W. Morris.

Miss M. Roberts.

Third Prize (£3) to Berkshire:—

Miss F. M. Twose (Instructress).

Mrs. Barnett

Mrs. Cottrell.

Mrs. Summers.

Mrs. Bucknell.

Mrs. Goodenough.

Mrs. Thorp.

Fourth Prize (£1) to Oxfordshire :—

	Miss K. Boyes (Instructress.)	
Miss N. H. Gale.	Miss S. Leach.	Frank Prewett.
Miss E. Green.	Miss M. Nutley.	Miss E. Weller.

Class 83.—CREAM CHEESE, made from pure Cream only. No Milk or Curd to be added (6 Cheeses).—*First Prize* (£1) to The East Anglian Institute of Agriculture. *Second Prize* (10s.) to J. H. Cash.

Class 84.—UNRIPENED SOFT CHEESE, other than Cream Cheese. Made direct from Milk (4 Cheeses).—*First Prize* (£1) to S. Willis, junr. *Second Prize* (10s.) to The East Anglian Institute of Agriculture.

BACON.

Class 85.—PALE DRIED (4 hamless sides of Spring or Winter Cure).—No Entry.

Class 86.—SMOKED (4 sides, mild cured in Wiltshire style with ham attached).—*First Prize* (Silver Medal) to The Herts and Beds Bacon Factory, Ltd. *Second Prize* (Bronze Medal) to Edward Miles & Co.

Class 87.—PALE DRIED (4 sides, mild cured in Wiltshire style, with ham attached).—*First Prize* (Silver Medal) to the Herts and Beds Bacon Factory, Ltd. *Second Prize* (Bronze Medal) to M. Venner & Sons, Ltd.

Class 88.—TWO SIDES OF BACON SMOKED AND TWO SIDES OF BACON PALE DRIED, AND TWO HAMS SMOKED AND TWO HAMS PALE DRIED (the weight of the sides not less than 56 lbs. and not more than 68 lbs. each; the hams not less than 12 lbs. and not more than 20 lbs. each).—*First Prize* (£7 7s.) to The Herts and Beds Bacon Factory, Ltd. *Second Prize* (£3 3s.) to M. Venner & Sons, Ltd. *Third Prize* (£2 2s.) to Edward Miles & Co.

Class 89.—BACON PIGS (6 pigs entered by their respective Breed Societies).—Prize (The "Whitley" Challenge Cup) to The Large Black Pig Society.

Class 90.—BACON PIGS (2 pigs entered by Breeders).—*First Prize* (Silver Medal) to R. Ibbotson. *Second Prize* (Bronze Medal) to J. H. Ismay.

Class 91.—COLONIAL (4 sides).—*First Prize* (Silver Medal) to The New Zealand Meat Packing & Bacon Co. (Co-operative), Ltd. *Second Prize* (Bronze Medal) to Gunns, Ltd.

HAMS.

Class 92.—PALE DRIED (4 hams, long cut, of Winter or Spring cure, not over 14 lbs. weight).—*First Prize* (Silver Medal) to W. H. Smart & Co., Ltd. *Second Prize* (Bronze Medal) to Marsh & Baxter, Ltd.

Class 93.—PALE DRIED (4 hams, long cut, of Winter or Spring cure, over 14 lbs. weight).—*First Prize* (Silver Medal) to Marsh & Baxter, Ltd. *Second Prize* (Bronze Medal) to Palethorpes, Ltd.

Class 94.—SMOKED (4 hams, long cut, mild cured, not over 10 weeks cured, not over 15 lbs. weight).—*First Prize* (Silver Medal) to W. H. Smart, Ltd. *Second Prize* (Bronze Medal) to M. Venner & Sons, Ltd.

Class 95.—PALE DRIED (4 hams, long cut, mild cured, not over 10 weeks cured, over 15 lbs. weight).—*First Prize* (Silver Medal) to Marsh & Baxter, Ltd. *Second Prize* (Bronze Medal) to Palethorpes, Ltd.

Class 96.—FOUR HAMS (cured in Ireland).—No entry.

Class 97.—TWO HAMS (cured in the Farmhouse or Home; professional bacon curers not eligible).—*First Prize* (£2) to J. Johnson. *Second Prize* (£1) to T. Foster.

Class 98.—SELLING CLASS (2 hams, any variety).—*First Prize* (£2) to Marsh & Baxter, Ltd. *Second Prize* (£1) to J. Johnson. *Third Prize* (10s.) to J. Johnson.

BUTTER.

- Class 99.—SLIGHTLY SALTED. Open only to farmers, their wives, sons, and daughters, occupying not exceeding 100 acres, and who have never won a prize in the Butter Classes at any of the Association's Shows; 2 lbs. in 1-lb. lumps (brick shape).—*First Prize* (£3) to Mrs. N. L. Martin. *Second Prize* (£2) to Mrs. L. Matthews. *Third Prize* (£1) to Mrs. C. E. Faull. *Fourth Prize* (10s.) to Miss N. K. Harkess. *Fifth Prize* (5s.) to Miss H. M. W. Barlow.
- Class 100.—PERFECTLY FREE FROM SALT (the produce of Channel Islands' Cattle and their Crosses; 2 lbs. in 1-lb. lumps, brick shape).—*First Prize* (£3) to T. R. Bolitho. *Second Prize* (£2) to Miss D. M. Spencer. *Third Prize* (£1) to Mrs. J. Way. *Fourth Prize* (10s.) to H. Y. Thompson. *Fifth Prize* (5s.) to E. Jones & Co., Ltd.
- Class 101.—SLIGHTLY SALTED (the produce of Channel Islands' Cattle and their Crosses; 2 lbs. in 1-lb. lumps, brick shape).—*First Prize* (£3) and B. D. F. A. Cup to Mrs. J. Way. *Second Prize* (£2) to Mrs. L. Matthews. *Third Prize* (£1) to Miss A. Prichard. *Fourth Prize* (10s.) to Miss I. Northcott. *Fifth Prize* (5s.) to S. L. Powell.
- Class 102.—PERFECTLY FREE FROM SALT (the Produce of Shorthorn and other Cattle and their Crosses (except Channel Islands and their Crosses); 2 lbs. in 1-lb. lumps, brick shape).—*First Prize* (£3) to Mrs. A. A. Bere. *Second Prize* (£2) to Mrs. Heywood. *Third Prize* (£1) to Miss R. James. *Fourth Prize* (10s.) to L. Currie. *Fifth Prize* (5s.) to Miss A. Prichard.
- Class 103.—SLIGHTLY SALTED (the produce of Shorthorn and other Cattle and their Crosses (except Channel Islands and their Crosses); 2 lbs. in 1-lb. lumps, brick shape).—*First Prize* (£3) to Mrs. A. A. Bere. *Second Prize* (£2) to Mrs. T. J. Smith. *Third Prize* (£1) to Mrs. J. Armstrong. *Fourth Prize* (10s.) to J. Heseltine. *Fifth Prize* (5s.) to Mrs. N. L. Martin.
- Class 104.—FREE FROM SALT OR SLIGHTLY SALTED, at the discretion of the Exhibitor, to be made from Scalded Cream only (2 lbs. in 1-lb. lumps, brick shape).—*First Prize* (£3) to Mrs. J. Way. *Second Prize* (£2) to Mrs. A. A. Bere. *Third Prize* (£1) to Mrs. N. L. Martin. *Fourth Prize* (10s.) to Mrs. L. Matthews. *Fifth Prize* (5s.) to Mrs. N. Field.
- Class 105.—FREE FROM SALT (24-lb. boxes of 12 rolls).—*First Prize* (£3) to The Egginton Dairy Co., Ltd. *Second Prize* (£2) to The Ida Co-operative Creamery, Ltd. *Third Prize* (£1) to C. Prideaux.
- Class 106.—MILD CURED (Slightly Salted in 24-lb. boxes of 24 rolls).—*First Prize* (£3) to C. Prideaux. *Second Prize* (£2) to The Ida Co-operative Creamery, Ltd. *Third Prize* (£1) to The Ardagh Co-operative Dairy. *Fourth Prize* (10s.) to The Egginton Dairy Co., Ltd.
- Class 107.—CURED (Slightly Salted, 28 lbs.).—*First Prize* (£3) to The Ballyrashane Co-operative Agricultural & Dairy Society, Ltd. *Second Prize* (£2) to The Ardagh Co-operative Dairy. *Third Prize* (£1) to The Ida Co-operative Creamery, Ltd.
- Class 108.—CURED (56 lbs.).—*First Prize* (£3) to The Ballyrashane Co-operative Agricultural & Dairy Society, Ltd. *Second Prize* (£2) to The Ardagh Co-operative Dairy. *Third Prize* (£1) to The Ida Co-operative Creamery, Ltd.
- Class 109.—FANCY OR ORNAMENTAL DESIGN (with foliage or other extraneous decoration).—*First Prize* (£3) to Miss E. Bush.
- Class 110.—FANCY OR ORNAMENTAL DESIGN (without extraneous decoration, adapted for table use).—*First Prize* (£3) to Miss E. Bush.

COLONIAL BUTTER.

- Class 111.—SALTED (one box containing not less than 56 lbs.).—*First Prize* (Gold Medal) to The Logan & Albert Co-operative Dairy Co., Ltd. *Second Prize* (Silver Medal) to The Goombungee Co-operative Dairy Co., Ltd. *Third Prize* (Bronze Medal) to The Government Produce Department, Adelaide.
- Class 112.—UNSALTED (one box containing not less than 56 lbs.).—*First Prize* (Gold Medal) to The Kyogle Co-operative Dairy Co. *Second Prize* (Silver Medal) to The Newstead Co-operative Butter Factory. *Third Prize* (Bronze Medal) to the Logan & Albert Co-operative Dairy Co., Ltd.

CREAM.

- Class 113.—CLOTTED.—*First Prize* (Silver Medal) to Brig.-Gen. The Lord St. Leven, C.V.O., C.B. *Second Prize* (Bronze Medal) to Miss I. Northcott.
- Class 114.—OTHER THAN CLOTTED.—*First Prize* (Silver Medal) to The Cathedral Dairy. *Second Prize* (Bronze Medal) to J. Q. Rowell.

BOTTLED FRUIT, VEGETABLES, AND JAMS.

- Class 115.—SIX BOTTLES OF SOFT FRUIT, of not less than 4 Varieties (Rhubarb admitted).—*First Prize* (£2) to G. W. Weatherill. *Second Prize* (£1) to The Horticultural College, Swanley. *Third Prize* (10s.) to Mrs. R. F. Hearnshaw.
- Class 116.—SIX BOTTLES OF STONE FRUIT, of not less than 4 Varieties (Apples and Pears admitted).—*First Prize* (£2) to The Horticultural College, Swanley. *Second Prize* (£1) to Mrs. R. F. Hearnshaw. *Third Prize* (10s.) to G. W. Weatherill.
- Class 117.—THREE BOTTLES OF SOFT FRUIT, distinct.—*First Prize* (£1) to Mrs. R. F. Hearnshaw. *Second Prize* (10s.) to The Horticultural College, Swanley. *Third Prize* (7s. 6d.) to The Cathedral Dairy.
- Class 118.—THREE BOTTLES OF STONE FRUIT, distinct.—*First Prize* (£1) to Mrs. R. F. Hearnshaw. *Second Prize* (10s.) to The Horticultural College, Swanley. *Third Prize* (7s. 6d.) to F. Reeks.
- Class 119.—SIX BOTTLES OF VEGETABLES, of not less than 4 Varieties (Tomatoes admitted).—*First Prize* (£2) and Silver Medal to The Horticultural College, Swanley. *Second Prize* (£1) to Mrs. R. F. Hearnshaw. *Third Prize* (10s.) to F. Reeks.
- Class 120.—THREE BOTTLES OF VEGETABLES, distinct.—*First Prize* (£1) to Mrs. R. F. Hearnshaw. *Second Prize* (10s.) to The Horticultural College, Swanley. *Third Prize* (7s. 6d.) to F. Reeks.
- Class 121.—THREE JARS OF JAM (1-lb. each, dissimilar, any Variety)—*First Prize* (£1) to The Horticultural College, Swanley. *Second Prize* (10s.) to The Cathedral Dairy. *Third Prize* (7s. 6d.) to Mrs. A. K. Barnett.

HONEY, WAX, &c.

- Class 122.—SIX JARS OF LIGHT-COLOURED EXTRACTED HONEY (1 lb. each approximate weight).—*First Prize* (£1) to F. W. Bunting. *Second Prize* (15s.) to J. Ward. *Third Prize* (12s. 6d.) to D. J. Griffiths. *Fourth Prize* (10s.) to C. Robinson.
- Class 123.—SIX JARS OF MEDIUM-COLOURED EXTRACTED HONEY, other than Heather Honey (1 lb. each approximate weight).—*First Prize* (£1) to Mrs. Hines. *Second Prize* (15s.) to F. W. Bunting. *Third Prize* (12s. 6d.) to C. Robinson. *Fourth Prize* (10s.) to E. C. R. White.

- Class 124.—SIX JARS OF DARK-COLOURED EXTRACTED HONEY, including any Variety of Heather Mixture (1 lb. each approximate weight).—*First Prize* (£1) to E. C. R. White. *Second Prize* (15s.) to J. Gordon & Sons. *Third Prize* (10s.) to D. J. Griffiths.
- Class 125.—SIX JARS OF GRANULATED HONEY, of 1921 or any previous year (1 lb. each approximate weight).—*First Prize* (£1) to W. Trinder. *Second Prize* (10s.) to J. Ward. *Third Prize* (7s. 6d.) to C. Robinson.
- Class 126.—SIX SECTIONS OF HONEY, other than Heather (size $4\frac{1}{2}$ by $4\frac{1}{2}$, 1 lb. each approximate weight).—*First Prize* (£1) to W. M. Robson.
- Class 127.—DISPLAY OF COMB AND EXTRACTED HONEY, of any year (approximately 100 lbs. in weight, shown on a space of 3ft. by 3 ft.).—No Entry.
- Class 128.—WAX (not less than 2 lbs. in 2 cakes only; the produce of the Exhibitor's Apiary; extracted and cleaned by the Exhibitor or his Assistants).—*First Prize* (15s.) to E. C. R. White. *Second Prize* (10s.) to G. Davis. *Third Prize* (7s. 6d.) to Mrs. Scott.
- Class 129.—WAX (not less than 3 lbs.; the produce of the Exhibitor's Apiary; extracted and cleaned by the Exhibitor or his Assistants; to be shown in shape, quality and package suitable for the retail trade).—*First Prize* (15s.) to E. C. R. White. *Second Prize* (10s.) to Mrs. Scott.
- Class 130.—INTERESTING AND INSTRUCTIVE EXHIBIT OF A PRACTICAL OR SCIENTIFIC NATURE, connected with BEE CULTURE, not mentioned in the foregoing classes.—*First Prize* (15s.) to E. H. Taylor, Ltd., for "Four-way Bee Escape."
- Class 131.—THREE VESSELS OF COLONIAL EXTRACTED HONEY, as imported.—*First Prize* (Silver Medal) to H. G. Sibbald. *Second Prize* (Bronze Medal) to The Government of Quebec.

ROOTS.

- Class 132.—SIX SPECIMENS OF GLOBE MANGOLDS, drawn from a crop of not less than two acres.—*First Prize* (£3) to J. R. S. Bastable. *Second Prize* (£2) to R. Thomas. *Third Prize* (£1) to The Walthamstow Urban District Council.
- Class 133.—SIX SPECIMENS OF GOLDEN TANKARD MANGOLDS, YELLOW FLESHED, drawn from a crop of not less than two acres.—*First Prize* (£3) to R. Thomas. *Second Prize* (£2) to P. Perry. *Third Prize* (£1) to J. James.
- Class 134.—SIX SPECIMENS OF INTERMEDIATE MANGOLDS, drawn from a crop of not less than two acres.—*First Prize* (£3) to W. Watts. *Second Prize* (£2) to D. Thomas. *Third Prize* (£1) to A. J. P. Isaac.
- Class 135.—SIX SPECIMENS OF SWEDES, PURPLE TOP, drawn from a crop of not less than two acres.—*First Prize* (£3) to T. W. Turnbull. *Second Prize* (£2) to Major J. A. Morrison, D.S.O. *Third Prize* (£1) to T. Park & Sons.
- Class 136.—SIX SPECIMENS OF SWEDES, BRONZE TOP, drawn from a crop of not less than two acres.—*First Prize* (£3) to W. Davidson. *Second Prize* (£2) to T. W. Turnbull. *Third Prize* (£1) to J. R. Gregory.
- Class 137.—SIX SPECIMENS OF SWEDES, GREEN TOP, drawn from a crop of not less than two acres.—*First Prize* (£3) to W. Davidson. *Second Prize* (£2) to P. Perry. *Third Prize* (£1) to T. W. Turnbull.
- Class 138.—SIX SPECIMENS OF TURNIPS, any one Variety, drawn from a crop of not less than two acres. *First Prize* (£3) to A. J. P. Isaac. *Second Prize* (£2) to W. Watts. *Third Prize* (£1) to J. Bucknell & Sons.
- Class 139.—SIX SPECIMENS OF KALE, THOUSAND HEADED, drawn from a crop of not less than two acres.—*First Prize* (£3) to W. Watts. *Second Prize* (£2) to P. Perry. *Third Prize* (£1) to Mrs. C. M. McIntosh.

Class 140.—SIX SPECIMENS OF KALE, MARROW STEM, drawn from a crop of not less than two acres.—*First Prize* (£3) to W. Watts. *Second Prize* (£2) to Lt.-Col. Pryor, D.S.O. *Third Prize* (£1) to Compton & Sons.

Class 141.—COLLECTION OF ROOTS, &C., FOR CATTLE-FEEDING IN WINTER. To consist of six specimens of not exceeding twelve Varieties in as many distinct Types as possible.—*First Prize* (£5) to W. Watts. *Second Prize* (£3) to P. Perry. *Third Prize* (£2) to Mrs. C. M. McIntosh.

COLONIAL PRODUCE.

Class 142.—COLLECTION OF COLONIAL DAIRY PRODUCE, to include Bacon, Dead Poultry and Eggs.—*Prize* (Gold Medal) to The Government of the Union of South Africa.

INVENTIONS.

Class 143.—ANY NEW APPARATUS OR INVENTION RELATING TO THE DAIRY INDUSTRY, OR ONE SHOWING DISTINCT AND PRACTICAL IMPROVEMENT ESPECIALLY AS TO SAVING LABOUR, not eligible for competition in any other Class, and not previously exhibited in competition at the Dairy Show.—*Silver Medal* to Maskinotch Brobyggnads for "Lasta Separator for Power"; The Dairy Supply Co., Ltd., for "Astra Automatic Milk Retarding (Positive Hold) Vat"; The Dairy Outfit Co., Ltd., for "Baltic Turbine Dairy Plant"; Lawrence & Co., Ltd., for "Lawrence's Patent Capillary Refrigerator." *Bronze Medal* to The Aluminium Plant & Vessel Co., Ltd., for "Midget Bulk Pasteurizer"; W. H. Smith & Co. (Whitchurch), Ltd., for "Milk Foam Destroyer"; F. G. Phillips & Son, Ltd., for "The 'Finsbury' Automatic Disc Inserter"; Carter & Gallimore, for "Hygienic Milk Sealed Disc"; The Alexandra Separator Co., for "Titan Milk Clarifier"; J. Dingle Williams, for "Clean Milk Pail"; G. Llewellyn & Son, for "Llewellyn's Patent 'Victory' Butter Churn (L.3 size)"; A. Grabham & Co., for "New addition to 'Dreadnought' Bottle Washer"; A. Grabham & Co., for "Handy Bottle Box Truck"; E. White, for "Bull Mask."

JUNKET-MAKING CONTESTS.

Class 144.—JUNKET MADE WITH MILK AND CREAM.—*First Prize* (£2) to Miss H. M. Trenchard. *Second Prize* (£1) to Miss D. E. Nicholas. *Third Prize* (10s.) to Miss J. A. Every.

Class 145.—CHAMPION CONTEST.—*Prize* (Silver Medal) to Miss H. M. Trenchard.

BUTTER-MAKING CONTESTS.

Class 146.—Open to those who have never won a Prize at any Show wherever held.

SECTION A.—*First Prize* (£3) to Miss N. McTiernan. *Second Prize* (£2) to Miss B. Clegg. *Third Prize* (£1) to Miss K. M. Collens.

SECTION B.—*First Prize* (£3) to Miss M. Thomas. *Second Prize* (£2) to Miss M. Codd. *Third Prize* (£1) to Miss K. Boyes.

SECTION C.—*First Prize* (£3) to Miss A. H. Pilkington. *Second Prize* (£2) to Miss A. Higgins. *Third Prize* (£1) to Miss J. Edwards.

Class 147.—Open to Students who have attended Classes at the British Dairy Institute, Reading, for not less than one month during the past two years.

SECTION A.—*First Prize* (£3) to Miss P. Clarke. *Second Prize* (£2) to Miss E. B. McMurtrie. *Third Prize* (£1) to Miss A. D. Ainslie.

SECTION B.—*First Prize* (£3) to Miss E. V. Abrey. *Second Prize* (£2) to Miss D. Dewdney. *Third Prize* (£1) to Miss M. F. Griffiths.

Class 148.—Open Contest for Men and Women.

SECTION A.—*First Prize* (£3) to Miss H. M. Trenchard. *Second Prize* (£2) to Miss K. Boyes. *Third Prize* (£1) to Miss D. Dewdney.

SECTION B.—*First Prize* (£3) to Miss L. M. Mitchell. *Second Prize* (£2) to Miss E. M. Price. *Third Prize* (£1) to Miss E. M. Mortimer.

SECTION C.—*First Prize* (£3) to Miss E. Roxburgh. *Second Prize* (£2) to Miss R. M. Gwillim. *Third Prize* (£1) to Miss P. E. Jackson.

SECTION D.—*First Prize* (£3) to Miss D. E. Nicholas. *Second Prize* (£2) to Miss E. Parry. *Third Prize* (£1) to L. J. Walker.

Class 149.—Open to First Prize Dairy Show Winners of 1922.—*First Prize* (£3 and Silver Medal) to Miss L. M. Mitchell. *Second Prize* (£2) to Miss H. M. Trenchard. *Third Prize* (£1) to Miss D. E. Nicholas.

Class 150.—CHAMPION CONTEST (open to Winners of First Prizes in the preceding Classes or at any Shows of The British Dairy Farmers' Association, Champions of any year excepted).—*First Prize* (Gold Medal) to Miss M. Thomas. *Second Prize* (£3) to Mrs. M. Pooley. *Third Prize* (£2) to Miss H. M. Trenchard.

MILKERS' CONTEST

(In addition to each First Prize a Silver Medal will be given.)

Class 151.—Open to Men and Boys of 16 years and over (Competitors of 1919, or prior thereto, are not eligible to compete).—*First Prize* (£5) to W. Watson. *Second Prize* (£3) to W. H. Slater. *Third Prize* (£2) to R. Hodgson.

Class 152.—Open to Boys under 16 years.—No Entry.

Class 153.—Open to Women and Girls of 16 years and over (Competitors of 1919, or prior thereto, are not eligible to compete).—*First Prize* (£5) to Miss E. Mallam. *Second Prize* (£3) to Miss M. R. Pugh. *Third Prize* (£2) to Miss N. M. Heavens.

Class 154.—Open to Girls under 16 years.—Cancelled.

Class 155.—CHAMPION CONTEST (open to First Prize Winners in preceding Classes or at the Shows of 1919, 1920 and 1921 of the The British Dairy Farmers' Association, Champions of any year excepted).—Prize (Gold Medal and £2) to Miss E. Mallam.

THE British Dairy Farmers' Association.



THE OBJECTS OF THE ASSOCIATION

are the improvement of

DAIRY STOCK AND DAIRY PRODUCE,

by encouraging the Breeding and Rearing of Stock for the special purpose of the Dairy; a larger and better production of Milk, Butter, Cheese, and Eggs; the Erection of Improved Dairy Buildings, and the Invention of New or Improved Dairy Utensils, Machinery, Implements, and Scientific Appliances. The Association also stimulates the Breeding and Rearing of Poultry, &c. By means of Papers in the Society's *Journal* (published annually), Annual Conferences in different dairy districts, Lectures, and Discussions, and in other ways, efforts are continually being made to disseminate a more thorough knowledge of Dairy husbandry. Moreover, prompt action is taken by the Association for the protection of the interests of Dairy Farmers in the event of their being threatened by legislation or by Departmental Orders.

Prizes to the value of about £3,500 are annually offered for competition at the Dairy Show, held at the Royal Agricultural Hall, Islington, London.

It is difficult to over-estimate the importance and need of greater attention being paid to the Dairy industry. It is admitted that by improved modes of managing Milk and its products, the wealth obtained from the Milch Cows of the country could be increased most materially. The Council, therefore, appeal to Agriculturists of all classes, and Dairy Farmers in particular, to become Members of the Association, and practically aid in developing its usefulness.

The advantages of Membership comprise:—

- 1.—A free pass to all the Society's Dairy Shows, available each day during the Exhibition, with the privilege of admitting free (by ticket) a friend on any one day.
- 2.—The privilege of participating at specially low charges in the Dairy Conferences at home or abroad, organised by the Association.
- 3.—The Exhibition of Live Stock, Dairy Produce, and Utensils, at a reduced scale of fees to those whose subscriptions for the past three years and current year are paid.
- 4.—A copy (free by post) of the *Journal* of the Association, published annually.
- 5.—Analyses by the Analytical and Consulting Chemist, at low fees, of samples of milk, cream, butter, cheese, feeding stuffs, water, soil, manures, &c., and advice on dairy matters connected with his Department.

- 6.—Professional advice and assistance at a reduced scale of charges, in any case of disease among the live stock of the farm.
- 7.—Examinations by the Consulting Pathological Bacteriologist, for particular pathogenic or disease-producing organisms.
- 3.—Investigations by the Consulting Dairy Bacteriologist into the cause of trouble or taints in dairy produce.
- 9.—In any case of hardship due to administration of legal or other regulations, Members are recommended to at once send details of such case to the Secretary, who will submit them to the Committee appointed to deal with such matters, after when advice and assistance will be given by the Association.

The Annual Subscription is £1, but Dairy Instructors and Students are admitted on payment of 10s. 6d. per annum. The latter sum entitles Dairy Instructors to all privileges, except the reduced fees for exhibition at the Shows.

Members' Veterinary Privileges.

Members of the Association who require professional assistance in any case of disease among their animals must apply direct to the Consulting Veterinary Surgeon, Professor G. H. WOOLDRIDGE, Royal Veterinary College, Camden Town, London, N.W. 1, whose scale of charge is as follows :—

	£	s.	d.
Personal Consultation	0	10	6
Post-mortem Examination and Report	0	10	6
Consultation by Letter	0	5	0
Visit and Report, in case of an outbreak of disease, in addition to personal and travelling expenses, per day	2	2	0

Members' Botanical Privileges.

The Council have fixed the following rates of charge for the examination of Plants and Seeds for the *bond fide* and individual use and information of Members of the Association (not being Seedsmen), who are particularly requested to mention the kind of examination they require, *and to quote its number in the subjoined Schedule.*

No.	£	s.	d.
1.—A Report on the purity, and amount of nature of foreign materials, of a sample of seed	0	1	0
2.—A Report on the perfectness and germinating power of a sample of seed	0	1	0
Nos. 1 and 2 together	0	1	6
3.—Determination of the species of any weed or other plant, or of any epiphyte or vegetable parasite, with a report on its habits, and the means for its extermination or prevention	0	1	0
4.—Report on any disease affecting farm crops	0	1	0
5.—Determination of the species of a collection of natural grasses found in any district, with a report on their habits and pasture value	0	4	0

Estimation of Water, Fat, Casein, and Ash ...	...	...	...	0 12 6
Examination for Foreign Fats ...	...	...	...	0 10 6

CHEESE.							£	s.	d.
Estimation of Water, Fat, Casein, and Ash ...	...	...	...	...	...	...	0	12	6
Examination for Foreign Fats (extra) ..	...	...	...	...	...	...	0	10	6
RENNET.							0	7	6
Examination of Strength ...	...	...	...	...	...	...	0	7	6
CAKES AND MEALS							0	7	6
Estimation of Oil only ...	...	...	...	...	...	...	0	7	6
Estimation of Oil, Albuminoids, Carbo-hydrates, &c. ...	...	...	...	...	...	...	0	15	0
GRASS, SILAGE, ROOTS, &c.							1	10	0
Estimation of Oil, Albuminoids, Carbo-hydrates, &c. ...	...	...	...	...	...	...	1	10	0
MANURES.							0	7	6
Estimation of Soluble Phosphoric Acid ...	...	...	...	...	...	...	0	7	6
Estimation of Soluble and Insoluble Phosphoric Acid ...	...	...	...	...	...	...	0	10	0
Estimation of Citric Soluble Phosphoric Acid ...	...	...	...	...	...	...	0	10	0
Estimation of Nitrogen... ..	...	...	...	...	...	...	0	7	6
Estimation of Potash ... ..	...	...	...	...	...	...	0	7	6
SOIL.							0	7	6
Estimation of Lime ... ..	...	...	...	...	...	...	0	7	6
Analysis and Report ... ..	...	...	...	...	...	...	2	2	0
WATER.							1	1	0
Analysis for Drinking or Dairy Purposes ...	...	...	...	...	...	...	1	1	0
POISONS.							2	2	0
Examination of a Substance for Mineral Poisons ...	...	...	...	...	...	...	2	2	0
Examination for Organic Poisons (Alkaloids, &c.) ...	...	...	...	...	...	...	3	3	0
CIDER AND FERMENTED DRINKS.							0	7	6
Estimation of Alcohol ... ..	...	...	...	...	...	...	0	7	6
Estimation of Alcohol, Sugar, Acidity, &c. ...	...	...	...	...	...	...	0	15	0
PRESERVATIVES.							0	2	6
Examining a Substance for Boracic Acid or Salicylic Acid, &c., for each Substance sought... ..	...	...	...	...	...	...	0	2	6
Estimation of the quantity of Boracic Acid ...	...	...	...	...	...	...	0	10	6
Analysis of a Preservative ... ..	...	...	...	...	...	...	1	1	0
CONSULTATION							0	5	0
For Letter in reply to Enquiry... ..	...	...	...	...	...	...	0	5	0
For Personal Interview ... ..	...	...	...	...	...	...	0	10	6
For Special Consultation ... ..	...	...	...	...	...	...	1	1	0

NOTE.—The Consulting Chemist will be prepared to quote reduced terms to members requiring a number of analyses at frequent intervals.

Instructions for Taking Fair Samples for Analysis.

Dairy Produce.—Milk should be sent in a well-corked 8-oz. clear bottle. The milk should quite fill the bottle. Butter or cheese, about 8 ounces; the former in a gallipot well tied down.

Soils.—A block of soil about four or five inches square, and nine inches deep, should be sent in a strong box by rail.

INVESTIGATIONS BY THE CONSULTING CHEMIST INTO THE CAUSES OF
TROUBLE OR TAINTS IN MILK, CREAM, BUTTER, OR CHEESE.

MILK.	£	s.	d.
Microscopical examination	1	1	0
Microscopical and cultural examination for a particular organism ...	2	2	0
Experimental and cultural examination for a particular organism	5	5	0 to 10 10 0
CREAM, BUTTER, CHEESE.			
Microscopical examination	1	1	0
Microscopical and cultural examination...	2	2	0
PASTEURIZED OR STERILIZED MILK.			
Microscopical examination for bacteria	0	5	0
Estimating number of bacteria present	0	15	0
Cultural examination of bacteria present	2	2	0

Directions for Sending Samples.

Samples of milk or water (one quart) and cream (half pint) should be forwarded in wide-mouthed stoppered bottles which have previously been thoroughly cleaned, and then rinsed several times with very hot, almost boiling, water.

Butter is best sent in a $\frac{1}{2}$ -lb. brick or roll, just as it was made up, wrapped in grease-proof paper, and packed in a box.

If the *Cheese* is small, send a whole one; otherwise forward a square block of not less than one pound and not a wedge-shaped piece. Wrap in grease-proof paper and pack in a box.

All samples should be sent by the speediest method possible. They ought not to arrive either on Saturday or Sunday.

Samples to be examined for disease-producing organisms should be forwarded to Dr. Andrewes, Pathological Laboratory, St. Bartholomew's Hospital, London, E.C. 1. Members are requested to note that in the case of examination for the tubercle bacillus the method of animal inoculation, which experience has shown to be the only reliable one, will be alone used. It is impossible to carry out the process of sedimentation necessary for the detection of tubercle bacillus in milk which is received in a curdled condition. The report cannot be sent for a period of four to six weeks from the time the sample is received, but in the case of other pathogenic organisms the time required is much shorter. Samples to be examined for organisms producing taints in dairy produce should be forwarded to Mr. F. J. LLOYD, F.I.C., F.C.S., 47, Fillebrook Road, Leytonstone, London, E. 11.

THE BRITISH DAIRY INSTITUTE, READING.

The British Dairy Institute was established at Aylesbury in 1888, by the British Dairy Farmers' Association, and several hundred Students were successfully trained there in different branches of dairy work. In order that Students might have an opportunity of combining with the practical study of dairying a more complete scientific instruction, the Institute was, in 1896, moved to Reading, and placed under the management of a Committee representing the British Dairy Farmers' Association and the University College, Reading.

The Institute contains large milk-receiving, butter-making, and milk-testing rooms; rooms for the manufacture of pressed, unpressed, and soft cheeses; and rooms for the ripening and drying of different varieties of cheese; besides reading, lecture, and common rooms. It is equipped with the best modern apparatus for the manufacture of dairy produce, including power-driven separating and buttermaking plant, and cold storage plant.

The instruction given is both practical and theoretical, and is arranged to suit the requirements of those who need either elementary or advanced dairy instruction, or who wish to perfect themselves in the manufacture of any special variety of dairy produce. Instruction is provided for students who wish to specialize in Bacteriology or Chemistry applied to dairying.

The Institute is open throughout the year, except during the Winter Vacation of eight weeks, which commences about the middle of November.

The Courses at the Institute are open to men and women above the age of 16 years. Students may join at any time while the Institute is open, and for any period not less than a week, but those who desire to take a thorough short course in buttermaking or cheesemaking are recommended to attend the Six Months' or Three Months' Joint Course in Dairying.

The manufacture of hard-pressed and soft cheeses is taught during the whole of the time when the Institute is open, but Stilton and other blue-veined varieties are not made until May.

Instruction is given in buttermaking, clotted-cream making, the testing and analysis of milk, the management of various types of separators, the handling and care of milk, and the preparation of starters, &c. Lectures and demonstrations are usually given in the afternoons, the mornings being chiefly devoted to practical dairy work.

Practical and theoretical instruction in buttermaking and cheesemaking (including hard-pressed, blue-veined, and soft cheese), £1 per week; £10 for three months; £18 for six months.

Practical and theoretical instruction in buttermaking only, 10s. per week (or part of week).

A full Prospectus will be sent on application to the Secretary, British Dairy Institute, Reading.

B. RAVENSCROFT,
Secretary, B.D.F.A.

28, Russell Square, London, W.C. 1.

Forty-seventh Half-yearly Report of the Council presented to the Members at the Meeting held at the Dairy Show, Royal Agricultural Hall, Islington, London, N. 1, on Wednesday, October 18th, 1922.

At the last Half-yearly Meeting of Members the Council was able to state that the Membership was on the upward grade. This increase has been maintained, and during the last few months over 100 Members have been elected—an indication that the efforts made to enlarge the Association have commenced to yield fruit.

The Council has to record the resignation from its midst of Sir W. A. Mount: and in accepting same with much regret, has nominated Mr. J. Gillard Stapleton as a substitute for the remaining period of Office.

After an interval of many years it was found possible to carry a Dairy Conference to a successful issue—the venue being the Home Counties, with Reading as a centre. Accommodation was largely provided at the Halls of Residence of the University College, Reading. Over 100 Members of the Association attended the Conference, which in their opinion proved a great success. Visits were paid to the College, the British Dairy Institute, the National Institute for Research in Dairying, the College, and the Research Farms, and Messrs. Sutton's Seed Establishment. The Royal Farms at Windsor were shown to the Conference party, and notable herds in the district were inspected, including Mr. Howard Palmer's Guernseys, Mr. Holt Thomas's British Friesians, and Major J. H. Morrison's Red Polls. The methods of Grade "A" certified and Grade "A" milk production were seen at the farms of Lord Astor, Mr. J. Herbert Benyon, Mr. R. H. Keene, and Mr. Edward Lousley.

The Council wish to record their great appreciation of Mr. Whitley's powers of organisation in arranging all the details of the Conference, and to thank him for his great services in promoting the welfare of those who attended.

The limited accommodation at the Royal Agricultural Hall, Islington, in connection with the Annual Dairy Show, is causing your

Council much concern. Last year it was found necessary to return some 600 Poultry and Pigeon entries. This year several entries of Cattle and Produce have been returned through a similar cause. It is consoling to think that the Show is so popular with Exhibitors—mortifying that lack of space should preclude the Association from enjoying in full the fruits of the labour expended in its organisation.

The Medal Distribution Scheme is being continued, and this year 14 Silver and 3 Bronze Medals have been awarded at local Shows.

Examinations held at the British Dairy Institute, Reading, have resulted in 31 sitting for the Diploma, 53 for the Buttermaking Certificate, and 50 for the Cheesemaking Certificate. Of these, 23 have gained the Diploma, 44 the Buttermaking, and 37 the Cheesemaking Certificate.

Examinations have also been conducted at the University College of South Wales and Monmouth, Cardiff, the East Anglian Institute, Chelmsford, and the Cannington Court Farm Institute, Bridgwater. These Examinations have resulted in the granting of 24 for Buttermaking and 17 for Cheesemaking.

The Council has given much thought to the necessity for the production of clean milk, and in this connection has circulated broadcast some 20,000 printed circulars describing methods which ensure cleanliness in the milk supply. A scheme has also been formulated and circulated, with a view to the initiation of Clean Milk Competitions by Local Centres, and the Association has offered its Silver Medal to the winner of each such competition.

A letter was received from the Ministry of Agriculture, asking the Association to send a representative to a meeting at the Ministry, to hear Professor Van Norman explain the conditions of a World's Dairy Congress which the United States Government purpose to hold next year. Mr. J. Gillard Stapleton attended. The Council has since been requested to nominate a Member of the Committee which has been set up by the Ministry to consider how this country may be adequately represented at the Congress. The Council has nominated Mr. S. R. Whitley.

The Council has been honoured by Viscount Elveden, who has taken so much active interest in the Association during the year, in allowing his name to be submitted for re-election as President for 1923, and your vote in support of the Council's nomination will shortly be asked for.

The following list of Vice-Presidents has also been prepared, and your approval will be asked. viz. :—

The Marquis of Crewe, K.G., Crewe Hall, Crewe.
Lord Northbourne, Betteshanger, Eastry, S.O., Kent.
Lord Kenyon, Gredington, Whitechurch, Salop.
Lord Strachie, Sutton Court, Pensford, Bristol.
Major Lord O'Hagan, Pyrgo Park, Romford.
Lord Desborough, K.C.V.O., Taplow Court, Taplow, Bucks.
Lord Bledisloe, K.B.E., Lydney Park, Gloucestershire.
Sir Gilbert Greenall, Bart., C.V.O., Walton Hall, Warrington.
Sir Mark J. McTaggart Stewart, Bart., Southwick, Dumfries.
S. Palgrave Page, J.P., 27, Oakwood Court, Kensington, W.14.
John Welford, J.P., Cumberland House, Kensington, W.8.
G. Titus Barham, Sudbury Park, Wembley, Middlesex.

Members of the Council named below retire in accordance with the Articles of Association, and have been proposed for re-election :—

W. Ashcroft, Surrey.
A. Birch, Lancashire.
W. S. Brocklehurst, Bedford.
William Burkitt, Durham.
Harold Jackson, Lancashire.
Captain R. Oliver Bellasis, Warwickshire.
Robert Shanks, Sussex.
E. G. F. Walker, Somerset.
S. R. Whitley, Berkshire.
Dr. R. Stenhouse Williams, Berkshire.

With much regret the Council has to report that Mr. W. H. Edwards, of Exeter, and Mr. James Sadler, of Crewe, do not seek re-election on the Council, but it is confidently hoped that in the near future circumstances will enable Mr. Sadler to re-consider his decision and apply for re-election on a body where his services for so many years have been of such value.

The following New Candidates have been duly proposed and seconded :—

Mrs. Beatrice Jervoise, Herriard Park, Basingstoke, proposed by Major E. Seymour, seconded by A. T. E. Jervoise.

Miss Jessie Stubbs, L.C.C. Dairy School, Hutton, Preston, proposed by G. Titus Barham, seconded by Dr. R. S. Williams.

Walter Betts, Moreton, Thame, Oxon. (Farmer), proposed by T. L. Harries, seconded by A. O. Latham.

Jesse Crumpler, Longlands, North Coker, Yeovil (Dairy Farmer), proposed by E. G. F. Walker, seconded by W. Ashcroft.

Stuart Heaton, Popular Farm, Iken, Tunstall, Suffolk (Farmer), proposed by Capt. A. G. Buxton, seconded by R. E. Parker.

R. Fletcher Hearnshaw, Fox Hill, Burton Joyce, Nottingham (Farmer), proposed by Alfred Birch, seconded by Harold Corrie.

E. P. Foquett Sutton, Sidmouth Grange, near Reading (Seedsman), proposed by S. R. Whitley, seconded by G. Titus Barham.

Mr. Herbert J. Page, who for so many years has audited the accounts of the Association, will be proposed for re-election as the Official Auditor, with Messrs. P. Hay, H. Dunn, and Fred Pitts as the Members' Honorary Auditors.

The undermentioned Resolution was passed on April 5th, 1922 :—

“ That this General Meeting of Members of the British Dairy Farmers' Association urge the Government to safeguard the health of the cattle of this Country by maintaining its attitude towards the embargo on the importation of live stock ; ”

and on 3rd May, 1922 :—

“ This Council cordially commends to its Members the campaign under the management of the National Publicity Council to promote the increased use of milk, and urges every producer and distributor of milk to co-operate by each contributing to the funds required, their quota of 1/12th penny per gallon.”



THE FOLLOWING TABLE GIVES COMPARATIVE DETAILS OF THE ENTRIES AT THE DAIRY SHOW WITH THOSE OF THE PAST TWELVE YEARS.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1919.	1920.	1921.	1922.
Cattle	237	247	232	288	222	210	286	234	204	292	384	455	515
Milking and Butter Tests	245	224	236	264	213	209	265	167	198	334	492	614	760
Goats	48	72	84	75	81	105	110	85	116	115	109	101	91
Poultry	3,081	3,280	2,997	3,259	3,300	3,350	3,840	3,089	2,653	2,736	4,317	4,348	4,398
Pigeons	2,664	2,564	2,282	2,280	2,226	2,496	2,407	2,201	2,735	2,760	3,259	3,272	3,208
Poultry and Pigeon Appliances	65	50	37	—	—	—	—	—	—	—	—	—	—
Cheese	420	357	355	362	249	343	395	301	271	342	462	406	418
Bacon and Hams...	57	76	55	104	58	71	89	67	45	—	34	56	87
Butter	593	608	535	525	484	618	549	371	339	242	286	322	388
Cream	35	47	42	47	26	48	43	27	20	16	19	32	37
Skim-milk Bread, &c.	118	135	115	98	72	83	64	46	65	40	40	—	—
Honey, &c.	67	85	88	96	87	95	106	126	77	20	49	63	58
Bottled Fruits and Vegetables	—	—	—	—	—	—	—	—	—	—	45	25	26
New and Improved Inventions...	33	37	31	34	21	25	41	24	6	23	14	38	30
Roots	177	181	218	196	172	190	190	59	51	80	144	148	183
Buttermaking Contests ...	200	207	120	145	165	165	141	97	101	110	86	162	141
Milkers' Contests	135	132	126	122	153	119	137	85	82	77	80	98	44
Junket-making Contest ...	—	—	—	—	—	—	—	—	—	—	7	8	12
Colonial Produce	—	—	—	—	—	—	—	—	—	—	2	2	3
	8,175	8,362	7,553	7,895	7,529	8,127	8,723	7,069	6,963	7,187	9,829	10,150	10,399

By order of the Council,

B. RAVENSCROFT, *Secretary*.

28, RUSSELL SQUARE,
LONDON, W.C.1, October, 1922.

FORTY-SEVENTH ANNUAL REPORT OF THE COUNCIL

to the General Meeting of Members,
Wednesday, 7th March, 1923.

In presenting the usual Report to the Members the Council is again able to record a profit on the year's working. Such a happy state of affairs, however, has only been brought about by the success attending the Association's Annual Dairy Show, the popularity of which shows no sign of diminishing. The total number of entries received was 10,399 against 10,150 in 1921.

Whilst naturally rejoicing in a successful Balance Sheet your Council is most anxious that the General Educational Work of the Association shall be more self-supporting than is the case at present. To that end each Member is urged to do his utmost to persuade at least one other person to join the Association.

The Membership Roll at the close of 1922 numbered 1,175. 180 new members have been elected, and 81 have resigned, died, or have been struck off, thus leaving a total membership of 1,274, consisting of 1,157 Annual, 112 Life, and 5 Honorary Members, with 15 affiliated Societies.

Changes have occurred in the constitution of your Council, in that the names of Mr. Jesse Crumpler, Mr. E. P. F. Sutton, Mrs. B. Jervoise and Miss J. Stubbs, replace those of Mr. A. Birch, Mr. W. H. Edwards, Mr. Harold Jackson, and Mr. James Sadler.

With other Societies your Council whole-heartedly resisted the proposal for the removal of the Canadian Cattle Embargo, and many thanks are due to Mr. John Evens for the lucid manner in which he pleaded the cause of the British Farmer before the Minister for Agriculture in April last.

Encouraged by the success of the Dairy Conference in the Home Counties (1922) the Council has decided to organize a ten days' tour in Denmark, period, May 19th—30th, 1923, and the arrangements are now well in hand.

Regulations issued by the Ministry of Health relating to the sale of Condensed Milk have received the Council's consideration. In making suggestions for their amendment the Council laid stress upon the necessity for each tin of imported condensed milk bearing a printed label with the word "Foreign" or "Colonial"—thus marking its origin. Also that the statement on each tin concerning the volume of fresh milk to which the contents is equal shall be given in pints, quarts, &c., instead of in ounces.

In addition to the usual examinations held at the British Dairy Institute, Reading, the East Anglian Institute, Chelmsford, and the University College, Cardiff, examinations have been held at the new Institute at Cannington Court, Bridgwater, Somerset. At this Institute all Candidates showed careful training and each gained the desired certificate.

Under the Medal Distribution Scheme 24 applications were received and grants were made as under :—

	Silver.	Bronze.
Dairy Cattle	7	—
Butter	4	2
Cheese	1	—
Buttermaking	1	—
Examination	3	2
Clean Milk Competition	1	—
Cow Judging Contest (Young Farmers' Club)	1	2
	<hr/> 18	<hr/> 6

At the December Meeting the Council considered the proposal of Mr. S. R. Whitley that—

“Members of the Council attending Meetings shall be paid the 3rd Class Rail Fare.”

It was urged that such a concession would result in the best possible brains becoming available to the Council, and as a consequence, the means of increasing the Association's usefulness to the industry. The subject, however, has proved to be of such a difficult nature that the Council has decided to seek the views of Members at this Meeting.

Mr. J. Gillard Stapleton has since given notice to move the following :—

“That all Railway Fares of Members of Council in excess of 10s. shall be paid for each Council Meeting attended.”

By Order of the Council,

B. RAVENSCROFT,
Secretary.

British Dairy Farmers' Association.

MEDAL SCHEME.

Special Prizes at Educational Institutions and Country Shows.

The Council of the British Dairy Farmers' Association is prepared to consider applications from Educational Centres and Approved Societies in the United Kingdom for their Silver and Bronze Medals to be awarded in connection with dairying and dairy farming under the following conditions, viz.:—

1. All applications must be made on the official form and must clearly state the object for which the Medal or Medals are required.
2. Only one application from any Institution or Society can be considered in any one year.
3. The application must be repeated annually if Medals are again required.
4. A copy of the Proposed Prize List, showing the Conditions of the Award of the Medal and the name of the judge, should accompany the application, and the offer of a Medal cannot be confirmed until the Prize List has been approved.
5. The British Dairy Farmers' Association stipulates that no entry fee shall be charged in respect of these Medals, they being offered as *Special Extra Prizes*.
6. Notification of the award, with the winner's full name and address, to be forwarded to the Secretary, British Dairy Farmers' Association, 28, Russell Square, London, W.C. 1, within 14 days of the award being made.
7. A person may not receive more than one Medal under this Scheme for the same subject or exhibit during any one year.

In the event of any dispute as to the interpretation of these Rules, the Council of the British Dairy Farmers' Association reserve full power of decision, and in the event of the Medal not being awarded in accordance with the above Rules and Conditions, the Council reserve the right to withhold the Medal altogether.

BY ORDER OF THE COUNCIL.

AWARDS DURING 1922.

Applicant.	Show or Examination held at	Date.	Medal.	Winner and Object.
Bucks County Council Agricultural Committee	Reading ...	March, April & May	Silver	R. H. Keene, as winner of Clean Milk Competition.
Yealhampton Agricultural Association ...	Yealhampton ...	May 17 ...	Silver	Mrs. G. Blackler for Butter, as best exhibit of Butter or Cream.
University College of South Wales and Monmouthshire	Cardiff ...	May 25 & 26	Bronze	Miss E. E. Price, gaining highest points in Butter-making Examination.
Essex Agricultural Society ...	Chelmsford ...	June 7 & 8	Silver	David Trembath, for Red Poll Cow "Trendring Floss 29," as best Dairy Cow or Heifer.
Royal Cornwall Agricultural Association ...	Newquay ...	June 14 & 15	Silver	The Earl of Mount Edgecumbe, for best exhibit of Butter.
Sussex Agricultural Society ...	Hastings ...	July 12 & 13	Silver	J. & H. Robinson, for Dairy Shorthorn Cow "Iford Red Rosebud," as best Dairy Cow in Milk.
Yorkshire Agricultural Society ...	Hull ...	July 26, 27, & 28	Silver	Miss C. A. Richmond, as Champion Buttermaker.
Welsh National Agricultural Society ...	Wrexham ...	July 26, 27, & 28	Silver	Samuel Dutton, for best exhibit of Cheese.
Hertfordshire Agricultural Society ...	Hatfield ...	July 27 ...	Silver	Stanley Blundell, for Lincolnshire Red Shorthorn Cow "Bendish Cherry 2nd," as best Shorthorn Cow.
University College of South Wales and Monmouthshire	Cardiff ...	Aug. 1, 2, & 3	Silver	Miss E. E. Price, gaining highest points in Cheese-making Examination.
Staffordshire Agricultural Society ...	Uttoxeter ...	Aug. 3 ...	Silver	J. G. Peel for Shorthorn Cow "Golden Ruby," as best Dairy Cow.
"	"	"	Bronze	Mrs. J. Foster, for best exhibit of Butter.

AWARDS DURING 1922.—Continued.

Applicant.	Show or Examination held at	Date.	Medal.	Winner and Object.
Tring Agricultural Society	Tring	Aug. 10	Silver...	R. W. Hobbs & Sons, for "Starlight 19th," as best Dairy Shorthorn Cow.
Moretonhampstead and District Agricultural Society	Moretonhampstead	Aug. 10	Silver	T. C. A. Harris, for South Devon Cow "Milkmaid," as best Dairy Cow in Milk.
"	"	"	Bronze	Mrs. A. Wills, for best exhibit of Butter.
Middlewich and District Agricultural Society	Middlewich	Aug. 23	Silver	Mrs. A. Cookson, for best exhibit of Butter.
Penistone Agricultural Society	Penistone	Aug. 24	Silver	B. Moorhouse, for Dairy Shorthorn Cow "Dorothy" as best Dairy Cow in Milk.
Young Farmers' Clubs	Dairy Show, Islington	Oct. 20	Silver	Miss Ivy Townsend, gaining highest score in Cow Judging Contest.
"	"	"	Bronze	Miss G. Faulds, gaining second highest score in Cow Judging Contest.
"	"	"	Bronze	Clifford White, gaining third highest score in Cow Judging Contest.
Gloucestershire Root, Fruit and Grain Society	Gloucester	Nov. 9	Silver	C. G. Ricketts, for best exhibit of Butter.
Monmouthshire Education Committee	Monmouth	Dec. 13, 14 & 15	Silver	Miss G. Jones, for best knowledge in Practice and Theory of Dairy Work and Dairy Farming.
"	"	"	Silver	Miss R. James, for best exhibit of Dairy Produce.
"	"	"	Bronze	Miss E. James, for best exhibit of Butter, Caerphilly and Wensleydale Cheeses.

British Dairy Farmers' Association

PRIZE ESSAY ON A DAIRYING SUBJECT.

The Council offers a Prize of £10 for an Essay upon any practical or scientific subject relating to Dairy Farming or Dairying.

Preference will be given to one based on the original work and experience of the writer. Where the work of others is relied upon full references must be given, either in footnotes or by numbers (1), (2), &c., with a list of authorities at the end.

The Essay should not exceed 5,000 words, and must be received by the undersigned on 1st December, 1923.

An Essay must be sent in a sealed envelope, bearing a *nom de plume*, and in another sealed small envelope, also bearing the *nom de plume*, the Author must insert his name and address.

The Prize Essay will be the property of the Association. Others will be returned to their respective Authors, but the Association reserve the right to retain Essays on subjects suitable for inclusion in the Annual Journal, which will be paid for at the usual rate for literary contributions.

B. RAVENSCROFT,

Secretary,

28, Russell Square, London, W.C. 1.

THE
British Dairy Farmers' Association.

Suggestions to Farmers as to how best to ensure
 THE
CLEANLINESS OF THE MILK SUPPLY.

The attainment of a clean milk supply is largely dependent upon the action of Dairy Farmers themselves.

Every Dairy Farmer is financially interested in this question. Public doubt of the cleanliness of the milk supply means reduced demand for fresh milk. Public confidence means increased use of milk as food and drink—consequently a larger demand.

Any Dairy Farmer by want of reasonable care can jeopardize the reputation of the whole industry and thus destroy the good work of those whose efforts are to increase the consumption of milk.

The co-operation of every producer is confidently requested.

The main points to be emphasized are :—

- (1) That consumers are entitled to receive milk which is clean and wholesome.
- (2) That the precautions necessary to produce clean wholesome milk are easy, simple and inexpensive.

Briefly these precautions are :—

To keep the milk sheds and cows as clean as possible.

To clean the udders and, before milking, wipe them with a clean damp cloth, rinsed after every cow.

To use a partly covered milking pail.

To see that milkers milk with clean hands.

To strain the milk through a strainer fitted with a new disc of cotton wool at each milking.

To empty water from cooler before washing.

To rinse utensils in cold water. Thoroughly wash in hot water and soda and scald in boiling water or preferably, sterilize with steam or by boiling in water.

To stand utensils upside down to drain after cleaning and NOT to wipe them.

THIS ASSOCIATION APPEALS TO EVERY DAIRY FARMER TO PUT THESE PRECAUTIONS INTO OPERATION, BEING CONVINCED THAT IF PRODUCERS DO NOT TAKE MEANS TO ENSURE A CLEAN WHOLESOME MILK SUPPLY THE DEMAND FOR FRESH MILK WILL SERIOUSLY DIMINISH.

Correspondence on this subject will receive attention at the Offices of the Association, 28, Russell Square, London, W.C. 1.

British Dairy Farmers' Association.

EXAMINATION FOR THE B. D. F. A. DIPLOMA.

The Association grants to any Candidate who satisfactorily passes the necessary Examinations:—

A Diploma and Silver Medal for Proficiency in the Science and Practice of Dairying.

Candidates for the Diploma must have previously obtained the Butter and Cheesemaking Certificates of the Association,* and must produce satisfactory evidence that they have received not less than one year's scientific and practical instruction at some recognised centre for Dairying Instruction, and have spent at least twelve months on a Dairy Farm in addition to the time spent at the Centre.

The Examination will extend over three or more days, and will test (1) the knowledge and experience of the Principles and Practice of Dairying and Dairy Farming, and (2) the skill in making Butter and Cheese, of each Candidate.

Candidates will be required to answer, in writing, sets of questions within a given time, and will also be examined *viva voce* . They will be expected to possess a sound knowledge of all the subjects included in the following Syllabus. Candidates, if required, must produce their note-books of Lectures and Demonstrations attended.

Examinations for Diploma are held in the Autumn upon dates announced in the Agricultural and Dairy Press.

Entries will close 28 days prior to the date fixed for the Examination.

The Entry Fee is 20s.

SYLLABUS.

1. DAIRYING.

- (a) Milk.—The Food Value of Milk; The Yield of Milk from various Breeds; Secretion of Milk and Structure of the Udder; Milking by Hand and Machine; Handling of Milk from Cow to Dairy; Importance of Cleanliness; Production of Highest Grade Milk; Cooling of Milk; Sale of Milk; Influence of Food on the Yield, Flavour, and Fat Contents of Milk; Composition of Milk, Nature and Properties of its Constituents; Differences between Morning and Evening Milk and their Causes; Methods of Sampling and Simple Methods of Testing Milk, as the Lactometer, Creamometer and Centrifugal Fat Testers; Testing for Acidity; Causes of Fermentation; Colostrum, its Nature and Properties; the Keeping of Dairy Records; the Handling of Evening's Milk for Cheesemaking; Properties of Milk suitable for Cheesemaking; Taints in Milk—their Causes, Effects and Remedies; Tests for such Taints; the Ripening of Milk for Cheesemaking; Methods and Reasons for Ripening; use of Natural and "Culture" Starters; Pasteurization of Milk; Chilled Milk: their Subsequent Use for Cheesemaking; Special Testing of Milk, Whey, and Curd requisite in a Cheese Dairy; Utilization of Dairy By-products.
- (b) Cream.—The Various Methods of obtaining Cream; the Construction and Use of the Utensils Employed; Separators, the Construction and Use of the various Types; Composition of Cream, Separated Milk, Skimmed Milk and Butter-milk, with Simple Tests for Fat in same; the Ripening of Cream, Objects and Results; Changes during Ripening; Testing for Acidity; Natural and Artificial Ripening and Preparation of Starters; the Preparation of Cream for Churning; Preparation of Cream for Sale; Clotted Cream.

*Equivalent Certificates of recognised bodies will be accepted by the Association as evidence of sufficient training to justify entry for this Examination.

- (c) **Butter.**—The Various Methods of obtaining Butter, including the Churning of Whole Milk; Utensils required and the Preparation, Use and Care of same; the Process of Butter Manufacture in all its Details; Conditions which affect the Butter Yield; Circumstances affecting the Flavour, Texture, Colour and Keeping Properties of Butter; Dry-salting and Curing of Butter; Faults in Butter and their Causes; Composition and Properties of Good Butter; Composition and Causes of Inferior Butter; Methods of Judging Butter.
- (d) **Cheese.**—Rennet: its Preparation, Properties, and Action upon Milk; Testing its Strength; Storage of Rennet; Substitutes for Rennet; Annatto; a General Knowledge of the Manufacture of the Principal Varieties of Hard-pressed, Blue-veined, and Soft Cheeses, including the use of Wood and Metal Tubs and Jacketed Vats; Methods of Scalding; the Development and Control of Acidity in Curd; Salting and Brining in Cheesemaking; Bandaging; Ripening and Storing of Hard-pressed, Blue-veined and Soft Cheeses; Defects in Cheese and their Causes; Composition of Cheese; Composition and Utilization of Whey; the Manufacture of Whey Butter; the Equipment of a Cheese Dairy and its Cost; the Care of Utensils.

Candidates will be required to make one Hard-pressed Cheese, either Cheddar, Cheshire, or Derby, to be selected by the Examiner, and one Blue-veined Cheese, either Stilton or Wensleydale, to be selected by the Candidate. They must also have a knowledge of the manufacture of other varieties of Hard-pressed Cheese, and of Soft Cheese.

2. DAIRY FARMING.

(a) A General Knowledge of Dairy Farm Management, including the Cultivation of Farm Crops, with a Special Knowledge of those employed in the Feeding of Dairy Stock.

(b) **Foods and Feeding.**—The Effects of various Foods on Milk and Dairy Products; Systems of Feeding and the Compilation of Rations.

(c) **Live Stock.**—Characteristics and Management of Different Breeds of Cattle; their Breeding and Rearing; Choice of Dairy Cattle for Special Purposes and Situations; Identification and Treatment of Common Ailments of Dairy Stock; Pigs and Poultry; Suitable Breeds for Use in Connection with a Dairy Farm and their Management.

(d) Buildings suitable for a Dairy Farm: their Situation, Construction, Ventilation, Drainage, &c.; Water Supply.

(e) Milk Records; Business Methods involved in Dairying; Book-keeping on a Dairy Farm.

(f) Improvement in Equipment and Methods on Dairy Farms: the Use of Score Cards.

3. CHEMISTRY.

(a) **General.**—The Chemical Elements and Constituents found in Milk Soils, Plants, Manures, Animals, and Foods: their Nature and Properties so far as they relate to Agriculture; the simpler Laws of Chemical Combination and Change so far as regards these Substances.

(b) **Dairy.**—The Composition and Properties of Milk, Cream Butter, Cheese, and Dairy Products, and of all Substances used in the Dairy; Simple Methods of Analysis as applied to these Substances; the Chemical Changes which may take place in Milk, Cream, Butter, &c.; Water Supply.

4. BACTERIOLOGY.

(a) General.—Bacteria, their Form, Classification, Growth and Reproduction; The Microscope and its Use; Staining and Microscopic Examination of Bacteria; Methods of Isolation and Cultivation; Preparation of Culture Media; Fermentations and Chemical Changes produced by Bacteria; Enzymes and their Action; Effects of Heat, Cold, Sterilization, Pasteurization, Disinfectants, and Preservatives on Bacteria and Enzymes.

(b) Dairy Bacteriology.—The Bacteria of Milk and Dairy Products; Examination of Milk for Foreign Bodies, Sediment, Blood, Pus, and Pathogenic Organisms; the Bacteriology of Milk, Cream, Butter, and Cheese; Commercial Bacterial Preparations for use in the Dairy; Bacteria Injurious to Dairy Produce: their Source, Nature, and Treatment; Bacterial and other Standards in relation to the Cleanliness of Milk.

(c) Fungi (Moulds) and Yeasts.—Their Forms, Classification, and Growth; their Relation to Dairy Produce.

5. INSTRUCTION.

Capacity to impart Instruction.—Organisation of Dairy Courses suitable to different Districts.

Particulars and Entry Forms may be obtained from

The SECRETARY,

BRITISH DAIRY FARMERS' ASSOCIATION,

28, Russell Square, London, W.C. 1.

EXAMINATION FOR CHEESEMAKING CERTIFICATE.

The Association grants to any Candidate who satisfactorily passes the necessary Examination—

A Certificate of Merit for Proficiency in the Theory and Practice of Cheesemaking.

The Examination, which will extend over two or more days, will test the Theoretical Knowledge of the Candidates and their Practical Skill in Cheesemaking. Each Competitor will be required to answer, in writing, a set of questions within a given time, and will also be examined *viva voce*. On the same or following day a Practical Examination in Cheesemaking will take place.

Candidates for this Certificate must, at the time of entry, produce satisfactory evidence that they have received at least twelve months' instruction in the Theory and Practice of Cheesemaking, of which at least six months must have been spent at a recognised centre for dairy instruction. They must possess a sound knowledge of the subjects included in the following Syllabus.

Candidates will be required to make one Hard-pressed Cheese, either Cheddar, Cheshire or Derby, to be selected by the Examiner, and one Blue-veined Cheese, either Stilton or Wensleydale, to be selected by the Candidate. They must also have a knowledge of the manufacture of other varieties of Hard-pressed Cheese and of Soft Cheese.

Candidates are at liberty to bring their own utensils for the Practical Examination if they wish to do so.

Examinations for Cheesemaking Certificates are held twice a year, viz., in the Spring and Autumn, upon dates announced in the Agricultural and Dairy Press.

Entries will close 28 days prior to the date fixed for the Examination.

The Entry Fee is 10s.

SYLLABUS.

1. Milk.—The Food Value of Milk; The Yield of Milk from various Breeds; Secretion of Milk and Structure of the Udder; Milking by Hand and Machine; Handling of Milk from Cow to Dairy; Importance of Cleanliness; Production of Highest Grade Milk; Cooling of Milk; Sale of Milk; Influence of Food on the Yield, Flavour and Fat Contents of Milk; Composition of Milk, Nature and Properties of its Constituents; Differences between Morning and Evening Milk and their Causes; Methods of Sampling and Simple Methods of Testing Milk, as the Lactometer, Creamometer, and Centrifugal Fat Testers; Testing for Acidity; Causes of Fermentation; Colostrum, its nature and properties; the Keeping of Dairy Records; the Handling of Evening's Milk for Cheesemaking; Properties of Milk suitable for Cheesemaking; Taints in Milk, their Causes, Effects and Remedies; Tests for such Taints; the Ripening of Milk for Cheesemaking; Methods and Reasons for Ripening; use of Natural and "Culture" Starters; Pasteurization of Milk; Chilled Milk; their Subsequent use for Cheesemaking; Special Testing of Milk, Whey, and Curd requisite in a Cheese Dairy; Utilization of Dairy By-products.

2. Cheese.—Rennet: its Preparation, Properties, and Action upon Milk; Testing its Strength; Storage of Rennet; Substitutes for Rennet; Annatto; a General Knowledge of the Manufacture of the Principal Varieties of Hard-pressed, Blue-veined, and Soft Cheeses, including the use of wood and metal tubs and jacketed vats; Methods of Scalding; the Development and Control of Acidity in Curd; Salting and Brining in Cheesemaking; Bandaging; Ripening and Storing of Hard-pressed, Blue-veined and Soft Cheeses; Defects in Cheese and their causes; Composition of Cheese; Composition and Utilization of Whey; the Manufacture of Whey Butter; the Equipment of a Cheese Dairy and its Cost; the care of Utensils; the Detailed Principles and Practice requisite for the Manufacture of one of the following types of Cheese:—

(a) A Hard-pressed British Cheese (not less than 25 lbs. weight).

(b) A Blue-veined British Cheese (not less than 10 lbs. weight).

Particulars and Entry Forms may be obtained from

The SECRETARY,

BRITISH DAIRY FARMERS' ASSOCIATION,

28, Russell Square, London, W.C. 1.

EXAMINATION FOR BUTTERMAKING CERTIFICATE.

The Association grants to any Candidate who satisfactorily passes the necessary Examination—

A Certificate of Merit for Proficiency in the Theory and Practice of Butter-making.

The Examination, which will extend over two or more days, will test the Theoretical Knowledge of the Candidates and their Practical Skill in Buttermaking. Each Competitor will be required to answer, in writing, a set of questions within a given time, and will also be examined *viva voce*. On the same or following day a Practical Examination in Buttermaking will take place.

Candidates for this Certificate must, at the time of entry, produce satisfactory evidence that they have received at least three months' instruction (not necessarily at a Dairy School) in the Theory and Practice of Buttermaking. They must possess a sound knowledge of the subjects included in the following Syllabus. They will be required to make Butter.

Candidates are at liberty to bring their own utensils for the Practical Examination if they wish to do so.

Examinations for Buttermaking Certificates are held twice a year, viz., in the Spring and Autumn, upon dates announced in the Agricultural and Dairy Press.

Entries will close 28 days prior to the date fixed for the Examination.

The Entry Fee is 5s.

SYLLABUS.

1. Milk.—The Food Value of Milk; the Yield of Milk from various Breeds; Secretion of Milk and Structure of the Udder; Milking by Hand and Machine; Handling of Milk from cow to dairy; Importance of Cleanliness; Production of Highest Grade Milk; Cooling of Milk; Sale of Milk; Influence of Foods on the Yield, Flavour and Fat Contents of Milk; Composition of Milk, Nature and Properties of its constituents; Differences between Morning and Evening Milk and their causes; Methods of Sampling and Simple Methods of Testing Milk, as the Lactometer, Creamometer, and Centrifugal Fat Testers; Testing for Acidity; Causes of Fermentation; Colostrum, its nature and properties; the Keeping of Dairy Records.
2. Cream.—The Various Methods of Obtaining Cream; the Construction and Use of the Utensils employed; Separators, the Construction and Use of the various Types; Composition of Cream, Separated Milk, Skimmed Milk, and Butter-milk, with Simple Tests for Fat in same; the Ripening of Cream—Objects and Results; Changes during Ripening; Testing for Acidity; Natural and Artificial Ripening and Preparation of Starters; the Preparation of Cream for Churning; Preparation of Cream for Sale; Clotted Cream.
3. Butter.—The Various Methods of Obtaining Butter, including the Churning of Whole Milk; Utensils required, and the Preparation, Use, and Care of same; the Process of Butter Manufacture in all its details; Conditions which affect the Butter Yield; Circumstances affecting the Flavour, Texture, Colour, and Keeping Properties of Butter; Dry-salting and Curing of Butter; Faults in Butter and their causes; Composition and Properties of Good Butter; Composition and Causes of Inferior Butter; Methods of Judging Butter.

Particulars and Entry Forms may be obtained from

THE SECRETARY,

BRITISH DAIRY FARMERS' ASSOCIATION,

28, Russell Square, London, W.C. 1.

EXAMINATION FOR FACTORY MANAGER'S DIPLOMA.

Regulations and Syllabus, viz. :—

Candidates must hold the British Dairy Farmers' Association's Diploma or the National Dairy Diploma.

They must have subsequently spent at least six summer months in a Factory dealing with not less than 500 gallons of milk daily.

Candidates will write answers to a paper and be examined orally and practically on the following :—

1. Factory : the Site, Construction, and Requirements of a Factory.
2. Lighting and Power in the Factory.
3. Boilers, Engines, Shafting, Fittings, and Apparatus, their disposition and control.
4. Maintenance and Cleansing of Factory and disposal of Waste.
5. Organisation of Labour and use of Labour-saving Devices.
6. Milk, management of, on arriving at Factory : Weighing, Sampling, Testing, Recording, Cleaning, &c.
7. Methods of dealing with the Milk for (a) Sale ; (b) Cream Production ; (c) Buttermaking ; (d) Cheesemaking ; (e) Other Products.
8. Refrigerating Machinery and its use.
9. Cold Stores and their Management.
10. Pasteurizing and Sterilizing Machinery and its use.
11. Cream, preparation of, for Market.
12. Butter : Manufacture and Treatment.
13. Cheese : Manufacture and Treatment.
14. Utilization of Bye-products.
15. Pig-keeping.
16. Business Management ; Book-keeping ; Stocktaking and Depreciation ; Contracts ; Railway Rates and Conditions ; Statements ; Notices, &c.
17. Law, so far as it affects the Factory, the Management, and the Produce, including main provisions of Factory and Workshop Act ; Workmen's Compensation ; Health Insurance ; Employers' Liability ; Rivers Pollution Act ; Industrial and Provident Societies Act ; Sale of Food and Drugs Act ; Milk and Dairies Acts, and other Legislation as it affects the Working of Factories and the Manufacture and Sale of Dairy Produce.

The Entry Fee for each Candidate is fixed at £4 4s.

Particulars and Entry Forms may be obtained from

THE SECRETARY,

BRITISH DAIRY FARMERS' ASSOCIATION,

28, Russell Square, London, W.C. 1.

EXAMINATIONS

AT

LOCAL CENTRES.

In order to meet the convenience of Students at Dairy Schools, members of local Societies, and other persons, the Association will conduct Examinations for its Diplomas and Certificates at any place in the United Kingdom upon receiving satisfactory proof that the following conditions will be observed :—

That the School, Society, County Council, or other body requesting such an Examination to be held, undertake :—

- (1) To supply all necessary appliances and materials.
 - (2) To pay the fees and expenses of the Examiners.
 - (3) To supply the milk required free from preservatives and fit for Cheesemaking.
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Copies of Question Papers set at recent examinations may be obtained at 3d. per copy.

Applicants are requested to state whether Diploma, Cheese, or Butter Questions are required.

Further particulars and Entry Forms for Students may be obtained from
The SECRETARY,

BRITISH DAIRY FARMERS' ASSOCIATION,

28, Russell Square, London, W.C. 1.

EXAMINATION RESULTS, 1922.

EXAMINATION FOR BUTTERMAKING CERTIFICATE AT THE UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE, CARDIFF; ON THURSDAY AND FRIDAY, MAY 25TH AND 26TH.

A Certificate of Merit for Proficiency in the Theory and Practice of Buttermaking to Miss Grace G. Arbuckle, Miss Elizabeth M. Jenkins, Miss Elizabeth J. John, Miss Elsie E. Morris, Miss Ethel E. Price, Miss Blodwen Rees and Miss Gwladus M. Thomas.

EXAMINATION FOR BUTTERMAKING AND CHEESEMAKING CERTIFICATES AT THE BRITISH DAIRY INSTITUTE, READING; ON MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, JUNE 19TH, 20TH, 21ST, 22ND AND 23RD.

A Certificate of Merit for Proficiency in the Theory and Practice of Buttermaking to Miss Norah Alexander, Miss Dorothy Best, Miss Constance E. Cohen, Miss Winifred M. Cooke, Miss Aileen M. Davidson, Miss Alice Davies, Miss Annie Davies, Alastair Donaldson, Miss Mary W. Earle, Miss Mary Edwards, Miss Marie M. Farrat, Miss Phyllis Faulkner, Miss Mary E. Franklin, Miss Margaret F. Griffiths, Miss Elizabeth M. Grundy, Miss Anne Hall, Miss Phyllis M. Hickson, Robert J. Hinton, Miss Mary T. Johnson, Miss Dorothy A. C. Long, Arthur T. Lutley, Thomas Martlew, Miss Marion A. Maxwell, Leonard J. Meanwell, Miss Margaret F. Nowell, John T. Pearson, John W. R. Pedder, Miss Esine V. A. Pettyfer, Miss Minnie Powell, Miss Janet R. L. Rennie, Miss Nesta Roberts, Miss Gladys M. Rowling, William J. A. Shepherd, Miss Mariana Slater, Miss Muriel R. Turner, Leslie J. Walker, Miss Muriel F. Wall and Miss A. Wheldon-Williams.

A Certificate of Merit for Proficiency in the Theory and Practice of Cheesemaking to Miss Norah Alexander, Miss Dorothy Best, Miss Elizabeth M. Cholmley, Miss Alice Davies, Miss Annie Davies, Miss Lucy Duncan, Miss Mary Edwards, Miss Marie M. Farrat, Miss Phyllis Faulkner, Miss Marjorie E. Fenton, Miss Mary E. Franklin, Miss Elizabeth M. Grundy, Miss Anne Hall, Miss Phyllis M. Hickson, Miss Mary T. Johnson, Thomas Martlew, Miss Elizabeth G. Matthews, John T. Pearson, Miss Nesta Roberts, Miss Monica Slingsby, Miss Ursula Starling, Leslie J. Walker, Miss Muriel F. Wall and John D. Williams.

EXAMINATION FOR BUTTERMAKING AND CHEESEMAKING CERTIFICATES AT THE DAIRY DEPARTMENT, COUNTY LABORATORIES, CHELMSFORD; ON TUESDAY, WEDNESDAY AND THURSDAY, JULY 18TH, 19TH AND 20TH.

A Certificate of Merit for Proficiency in the Theory and Practice of Buttermaking to George R. Blackshaw, Thomas C. Goddard, Miss Kathleen Mahler, Barclay Sandwell, Richard S. Skelton, Miss Dorothy Whittingham and Arthur L. Wooding.

A Certificate of Merit for Proficiency in the Theory and Practice of Cheesemaking to George R. Blackshaw, Miss Alberta M. Foxlee, Barclay Sandwell, Richard S. Skelton, and Miss Dorothy Whittingham.

EXAMINATION FOR BUTTERMAKING AND CHEESEMAKING CERTIFICATES AT THE CANNINGTON COURT FARM INSTITUTE, BRIDGWATER; ON MONDAY, TUESDAY AND WEDNESDAY, JULY 24TH, 25TH AND 26TH.

A Certificate of Merit for Proficiency in the Theory and Practice of Buttermaking to Miss Charlotte M. Bush, Miss Mary A. Cattell, Samuel J. Fooks, William J. Fooks, Miss Margaret Gilson, Miss Audrée J. Hampson, Miss Mary B. Mackie, Miss Edith A. Masters, Miss Gwendolen W. Pitt and Miss Mary J. Story.

A Certificate of Merit for Proficiency in the Theory and Practice of Cheesemaking to Miss Charlotte M. Bush, Miss Mary A. Cattell, Miss Margaret Gilson, Miss Audrée J. Hampson, Miss Edith A. Masters and Miss Gwendolen W. Pitt.

EXAMINATION FOR CHEESEMAKING CERTIFICATE AT THE UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE, CARDIFF; ON TUESDAY, WEDNESDAY AND THURSDAY, AUGUST 1ST, 2ND, AND 3RD.

A Certificate of Merit for Proficiency in the Theory and Practice of Cheesemaking to Miss Grace G. Arbuckle, Miss C. Evans, Miss Florence M. Harris, Miss Elizabeth J. John, Miss Ethel E. Price and Miss Blodwen Rees.

EXAMINATION FOR DIPLOMA, BUTTERMAKING AND CHEESEMAKING CERTIFICATES AT THE BRITISH DAIRY INSTITUTE, READING; ON TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY, SEPTEMBER 19TH, 20TH, 21ST, AND 22ND.

A Diploma and Silver Medal for Proficiency in the Science and Practice of Dairying to Miss Margaret Brittain, Miss Edith M. Burrows, Miss Phyllis M. G. Clarke, Miss Freda M. Crawter, Miss Dorothy Dewdney, Miss Mary Edwards, Miss Eveline M. Grundy, Miss Anne Hall, John Holmes, Miss Mary T. Johnson, Miss Emily Lambert, Thomas Martlew, Miss Elizabeth G. Matthews, Miss Dorothy M. Peacock, John T. Pearson, Miss Alice H. Pilkington, Miss Elsie L. Pollard, Miss Katie Roberts, Miss Nesta C. Roberts, Miss Elsie M. Siddle, Miss Janet M. Spencer, Leslie J. Walker and John D. Williams.

A Certificate of Merit for Proficiency in the Theory and Practice of Buttermaking to Marcus Drew, Miss Margaret E. Gurner, William D. Moss, Miss Muriel G. Pantling, Miss Nina M. Powell and Miss Joan K. T. Warter.

A Certificate of Merit for Proficiency in the Theory and Practice of Cheesemaking to Miss Ethel V. Abrey, Miss Constance E. Cohen, Alastair Donaldson, Miss Margaret E. Gurner, Robert J. Hinton, Miss Dorothy A. C. Long, Arthur T. Lutley, Leonard J. Meanwell, Miss Elsie McMurtrie, William D. Moss, Miss Muriel G. Pantling, Miss Esine V. A. Pettyfer, and Miss Nina M. Powell.

EXAMINATION FOR BUTTERMaking CERTIFICATE AT
THE UNIVERSITY COLLEGE OF SOUTH WALES AND
MONMOUTHSHIRE, CARDIFF; ON THURSDAY AND
FRIDAY, MAY 25TH AND 26TH, 1922.

EXAMINER: REGINALD GRANT.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. What is Milk? Give a short definition followed by a brief paragraph giving the average composition and properties of Cows' Milk.
2. What is the Value of Milk Records? Describe briefly how they should be kept.
3. What are the Causes of Fermentation in Milk?
4. What steps would you take to ensure Milk for sale being in good condition when it reaches the consumer?
5. Describe as shortly as possible two methods of obtaining the Cream from the Milk.
6. Give a complete list of all necessary Utensils required for a Dairy of 15 Cows, when 7 gallons of Milk is sold daily and the remainder of the produce is sold as Butter and Clotted Cream.
7. How would you prepare Cream for Market?
8. What are the principal causes affecting the (1) Flavour; (2) Colour; (3) Keeping qualities of Butter?
9. What method do you use to ripen Cream?
10. Describe how you salt Butter (1) for immediate use; (2) for keeping.

EXAMINATION FOR BUTTERMAKING CERTIFICATE AT
THE BRITISH DAIRY INSTITUTE, READING; ON
MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND
FRIDAY, JUNE 19TH, 20TH, 21ST, 22ND, AND 23RD, 1922.

EXAMINERS: R. H. EVANS, B.Sc., AND F. J. LLOYD, F.C.S., F.I.C.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. Why is evening's milk generally richer than morning's milk?
2. What effect would the following have on the lactometer reading (a) extraction of cream, (b) addition of water, (c) extracting one gallon of cream weighing 10 lbs., and adding same quantity of water, (d) addition of separated milk.
3. What percentage of fat is generally found in (a) separated milk, (b) buttermilk, (c) butter, (d) cream intending for churning, (e) thick cream.
4. Describe the use of the creamometer.
5. What is the average amount of milk required to yield 1 lb. of butter in the case of (a) a herd of Jersey cows (b) a herd of shorthorns.
6. Describe a method of testing for acidity in milk. What acidity would you expect to find in (a) new milk, (b) cream ripe for churning, (c) milk, when it curdles, (d) starter—as used in the dairy.
7. Buttermilk is sometimes found to contain an abnormal amount of fat. To what causes may this be due?
8. Describe the "Shallow Pan" method of obtaining cream.
9. Mention some of the conditions which would lead you to describe a sample of butter as being "inferior."
10. Why is the colour of butter sometimes very pale?

EXAMINATION FOR CHEESEMAKING CERTIFICATE AT
THE BRITISH DAIRY INSTITUTE, READING; ON
MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND
FRIDAY, JUNE 19TH, 20TH, 21ST, 22ND AND 23RD, 1922.

EXAMINERS :

F. J. LLOYD, F.C.S., F.I.C., AND G. SUTHERLAND THOMSON.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

(Ten questions only to be answered.)

1. Give your reasons for the selection of a particular breed of cows for a farm exclusively engaged in the manufacture of Cheshire or Cheddar cheese.
2. State in detail how a herd of cows should be milked to ensure clean milk and the practical and scientific precautions you would take in the summer months to deliver the milk in first-class condition to the railway station for conveyance to the cheese factory or by road transport over a distance of six miles.
3. In buying milk for cheesemaking how would you ascertain if the milk was (a) normal, (b) pure, (c) clean, (d) suitable to the manufacture of first-grade cheese?
4. Name flavours and taints in milk which come under the heading of *natural*, *bacterial*, *chemical*, *plant*.
5. How would you disinfect a cheese factory that was contaminated with yeast?
6. Explain the tests you would make to enable you to conscientiously recommend a pure culture for ripening cheese milk.

7. Under what conditions of the milk supply and of the making and ripening of Cheddar and Cheshire cheese are the best results obtained from starters ?
 8. In recommending the Pasteurizing of milk for cheesemaking, what precautions are necessary to prevent abuses of the practice ?
 9. How would you satisfy yourself that your rennet, colour, and salt were of a high standard of quality ?
 10. Explain fully how the market requirements guide you in the manufacture of cheese.
 11. Give the detailed equipment and cost of a Cheddar cheese dairy treating from 100-150 gallons of milk daily.
 12. Select two of the following varieties of cheese (one hard, one soft), and carefully state what would guide you as to their suitability and ripeness for marketing. Cheshire, Cheddar, Derby, Wensleydale, Stilton, Camembert, Cream.
 13. In what way does the quality of English Cheddar cheese differ from Scotch Cheddar ? also compare the properties of English Cheddar with New Zealand, Canadian and South African Cheddar.
 14. Compare English Cheddar with Cheshire cheese, giving any differences in composition, age when ripe, weight of ripe cheese to the gallon of milk, and present market value.
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EXAMINATION FOR BUTTERMAKING CERTIFICATE AT
THE DAIRY DEPARTMENT, COUNTY LABORATORIES,
CHELMSFORD; ON TUESDAY, WEDNESDAY, AND
THURSDAY, JULY 18TH, 19TH, AND 20TH, 1922.

EXAMINERS: F. J. LLOYD, F.C.S., F.I.C., and ALEC TODD.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. Which constituents of milk are in solution and which are not in solution ?
2. A cow gave 500 gallons of milk in a year with an average fat content of 4 per cent. It was all converted into Butter. How much butter ought to have been obtained ?
3. Why is it important to ensure clean milk ?
4. What method would you adopt to detect unclean milk ?
5. Why does the morning's milk of a herd often vary in composition from day to day ?
6. Why do you go to the trouble of ripening Cream ?
7. Is it always necessary to use a starter ? If not, when ; if necessary, why ?
8. Why do you wash and brine the Butter Grains ?
9. In using the Butter Worker what four precautions have to be taken ? For each, state why.
10. Explain the meaning of the terms ; Acidity ; Butter-ratio ; Percentage ; Specific Gravity.

EXAMINATION FOR CHEESEMAKING CERTIFICATE AT
THE DAIRY DEPARTMENT, COUNTY LABORATORIES,
CHELMSFORD; ON TUESDAY, WEDNESDAY, AND
THURSDAY, JULY 18TH, 19TH, AND 20TH, 1922.

EXAMINERS: F. J. LLOYD, F.C.S., F.I.C., and ALEC TODD.

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Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. What effect would dirty or imperfect milking have on the production of good quality milk, either for consumption as milk or manufactured into Butter or Cheese?
2. What are the chief troubles that arise in the manufacture of Wensleydale Cheese?
3. What are the functions of the following in the making of good Cheese?
 1. Acidity.
 2. Rennet.
 3. Scalding.
 4. Salt.
4. What equipment would be necessary for the thorough cleansing of dairy utensils on an ordinary dairy farm?
5. What is the chief difference in the manufacture of Cheddar and Derby Cheese?
6. Why is Cheddar Cheese pressed, and what would be the effect of too little or too much pressure?
7. What is the chief cause of Stilton Cheese going blue?
8. What are your views regarding the making of Cheese on the farm as compared with the factory system of manufacture?
9. Why does a Cheese ripen or mellow down.
10. How would the following affect the manufacture of Soft Cheese?
 1. Low Temperatures.
 2. Dirty Milk.
 3. Over-stirred Curd.
 4. Low percentage of fat in milk.

EXAMINATION FOR BUTTERMAKING CERTIFICATE AT
CANNINGTON COURT FARM INSTITUTE, BRIDGWATER;
MONDAY, TUESDAY AND WEDNESDAY, JULY 24TH, 25TH,
AND 26TH, 1922.

EXAMINERS :

MISS JESSIE STUBBS and F. J. LLOYD, F.I.C., F.C.S.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

Each question carries the same number of marks, and Candidates gaining over 60 per cent. will pass.

Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. What are the constituents of milk, and how are they present ?
2. A cow gives 600 gallons of milk in a year, with an average fat content of 3·5 per cent. It is converted into Butter. How much should be obtained ?
3. Why is it important that milk should be clean ?
4. What is the best method of testing milk for cleanliness ?
5. How does morning's milk usually differ from evening's milk in composition, and why ?
6. What is fermentation, and what changes due to it are of importance to the butter-maker ?
7. Under what conditions is it most desirable to use a starter ?
8. What objects do you desire to secure by washing and brining the butter grains ?
9. To what do you attribute the slightly bitter or rancid flavour of ill-made butter ?
10. Explain the meaning of the terms :—Acidity ; Butter-ratio ; Percentage ; Specific Gravity.

EXAMINATION FOR CHEESEMAKING CERTIFICATE AT
THE CANNINGTON COURT FARM INSTITUTE, BRIDGE-
WATER; ON MONDAY, TUESDAY AND WEDNESDAY,
JULY 24TH, 25TH AND 26TH, 1922.

EXAMINERS :

MISS JESSIE STUBBS and F. J. LLOYD, F.I.C., F.C.S.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

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Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. Why should a cheese-maker keep a daily record ? Draw a plan of a simple but efficient Cheddar record.
2. When making Cheddar cheese in a farm house, would you use a natural or an artificial starter ? Give the acidity of the starter you prefer.
3. What is "Chilled Milk" ? How would you proceed to make a first class cheese from it ?
4. Give the average per cent. of fat found in the following :— Cheddar cheese, Cheshire cheese, Whey butter, Shorthorn milk, Whey.
5. A farmer makes cheese during the cheese-making season from a herd of 40 cows and sells milk in the winter. What weight of cheese would you expect him to make ?
6. Describe shortly the changes taking place in the ripening of a Stilton cheese.
7. Purchased milk is found to contain 2.8 per cent. of fat and has a specific gravity of 1.030. State how much Cheddar cheese 20 gallons of such milk would produce. Compare your answer with an average yield.
8. Give the per centage of acid at the various stages of manufacture of a Cheddar and Stilton cheese. Tabulate your answer.
9. Discuss the effects of Co-operation in a cheese-making district.
10. What by-products would you expect from a 50 cow dairy where the milk is made into cheese ? How would you dispose of these to the best advantage ?

EXAMINATION FOR CHEESEMAKING CERTIFICATE AT
THE UNIVERSITY COLLEGE OF SOUTH WALES AND
MONMOUTHSHIRE, CARDIFF; ON TUESDAY, WEDNES-
DAY, AND THURSDAY, AUGUST 1ST, 2ND, AND 3RD, 1922.

EXAMINER: MISS DORA G. SAKER.

Three hours are allowed for this paper.

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

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Candidates will subsequently be examined *viva voce*.

QUESTIONS.

1. Describe the treatment of the evening's milk for Cheesemaking -
(a) In Summer.
(b) In Winter.
2. In what way may milk that is to be used for the manufacture of Cheese be contaminated during production?
3. What are the three main factors that control Cheesemaking?
4. What are the advantages and disadvantages of brining and dry-salting Caerphilly Cheese?
5. Compare Caerphilly and Cheddar Cheese, and state to which class of Cheese they each belong.
6. What takes place in the ripening of—
(a) Soft Cheese,
(b) Hard pressed,
(c) Blue Veined?
7. At what stages in the manufacture of Cheese does the loss of fat occur? Give percentage.
8. Describe the method of making and producing high-class Whey Butter.
9. What equipment is necessary for a dairy of 50 cows? Draw a plan of the Cheesemaking room, placing the apparatus in position.
10. To what use can the bye-products of Cheesemaking be put?

EXAMINATION FOR DIPLOMA AT THE BRITISH DAIRY
INSTITUTE, READING; ON TUESDAY, WEDNESDAY,
THURSDAY, AND FRIDAY, SEPTEMBER 19TH, 20TH, 21ST,
AND 22ND, 1922.

EXAMINERS: R. H. EVANS, B.Sc., F. J. LLOYD, F.C.S., F.I.C.,
and G. SUTHERLAND THOMSON.

Three hours are allowed for this paper

Candidates are requested to make their answers as brief as possible. Each answer should be written on a separate sheet of paper, and the sheets should be fastened together in order in the left-hand corner. The top sheet should bear the name of the Candidate.

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Candidates will subsequently be examined *viva voce*.

QUESTIONS.

CHEMISTRY.

1. What is the meaning of the term "neutralized"? Give instances of it in the soil, the plant, the animal, and in dairy produce.
2. When chemical combination and change take place, what fundamental law do these always follow?
3. Upon what does the availability of the food of plants, animals, and man depend?
4. Explain the chemical changes which take place in the curdling of milk (a) by rennet, (b) by natural souring, (c) by the addition of acetic acid.

BACTERIOLOGY.

1. Describe in detail how you would measure the size of fat globules in milk and of bacteria.
2. What methods are adopted for examining cheese for micro-organisms? Describe the appearance of those present in (a) ripe hard cheese, (b) ripe soft cheese.
3. How would you differentiate between the changes produced by yeasts, moulds, bacteria, and enzymes?
4. Describe the butyric acid bacillus, and state where found, its food, and the chemical changes it brings about.

EXAMINATION FOR DIPLOMA AT THE BRITISH DAIRY
INSTITUTE, READING; ON TUESDAY, WEDNESDAY,
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EXAMINERS: R. H. EVANS, B.Sc., F. J. LLOYD, F.C.S., F.I.C.,
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Candidates will subsequently be examined *viva voce*.

DAIRYFARMING QUESTIONS.

1. On a 200 acre dairy farm (one-third arable) where cheese is made, what breed of cattle and how many would you keep? How much cheese would you expect to sell annually?
2. How would you crop the arable portion of the farm, and what would you consider to be an average yield of each crop grown?
3. What breed of pigs would you go in for? State the number of breeding sows you would keep, and the number of pigs you would fatten every year.
4. What catch crops would you grow? State the amount of seed you would sow per acre, the time of sowing, and the period of the year each crop would be ready for feed.
5. What steps would you take to clean a foul piece of wheat stubble intended for a crop of mangolds? Describe the cultivation of the crop.
6. Describe the steps you would take in the event of abortion making its appearance in the herd?
7. What points would you look for in a typical dairy heifer? What, in addition, would you take into consideration in choosing heifers for a herd where milk production is the chief object in view?
8. In constructing a cow-byre, briefly describe the system of ventilation and drainage you would adopt.
9. Draw specimen pages of the books you would keep on a milk-selling farm.
10. What, in your opinion, are the chief lines along which improvement in the production of milk on ordinary dairy farms may be brought about?

EXAMINATION FOR DIPLOMA AT THE BRITISH DAIRY
INSTITUTE, READING; ON TUESDAY, WEDNESDAY,
THURSDAY, AND FRIDAY, SEPTEMBER 19TH, 20TH, 21ST,
AND 22ND, 1922.

EXAMINERS: R. H. EVANS, B.Sc., F. J. LLOYD, F.C.S., F.I.C.,
and G. SUTHERLAND THOMSON.

Three hours are allowed for this paper.

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Candidates will subsequently be examined *viva voce*.

DAIRYING QUESTIONS.

1. Having in mind a quality of milk with a clean attractive flavour, how would you treat, for household purposes, milk in bulk having a *temporary* unpleasant flavour due to feeding, a *fixed* unpleasant flavour due to bacterial contamination (non-pathogenic), and milk which you suspect is contaminated with pathogenic germs, bovine or otherwise?
2. Explain the advantages of refrigerating milk for household and dairy factory purposes; also carefully explain the abuses of the practice and their dangers to the milk supply and to manufactured products.
3. State why the cream supply is far more vital to the production of superfine butter than the practice of manufacture.
4. Explain how a choice butter flavour in cream is obtained, and what tests would guide you in describing cream as "choicest quality." Give a scale of points suitable to the grading of (a) milk, (b) cream, (c) butter.
5. What features would guide you in judging the suitability and general qualities of the following equipment:—Cheddar Cheese Vat, Curd Mill, Cheese Cloths, Curd Knives, Milk Sieves and Thermometers?
6. In giving directions for the building of a factory converting 1,000 gallons of milk per day into hard pressed varieties of cheese, state the precautions you would take against failure of any one of the vital factors upon which success depends.

EXAMINATION FOR BUTTERMAKING CERTIFICATE AT THE
BRITISH DAIRY INSTITUTE, READING; ON TUESDAY,
WEDNESDAY, THURSDAY, AND FRIDAY, SEPTEMBER
19TH, 20TH, 21ST, AND 22ND, 1922.

EXAMINERS :

R. H. EVANS, B.Sc., and F. J. LLOYD, F.C.S., F.I.C.

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Candidates will subsequently be examined *viva voce*

QUESTIONS.

1. In handling milk in the dairy, what indications would lead you to suspect that it contains dirt ?
2. What are the advantages of using a "starter" for ripening cream ?
3. Which of the constituents of milk contain nitrogen, and what becomes of these substances (a) during the process of separating, (b) during the churning process ?
4. Describe—in order—the more important changes which take place when milk is heated from 60° F. to the boiling point.
5. What steps would you take in dealing with sleepy cream ?
6. What are the characteristics of a good sample of dairy salt ?
7. What effect will overwashing the grain, and overworking the butter have on the final product ? Give reasons for your answer.
8. How much butter ought 100 gallons of milk containing 3.5 per cent. fat yield ?
9. How much milk would you expect an ordinary Shorthorn to yield during a lactation period ? Describe the difference in the composition of the milk obtained the first day after calving, two months after calving, seven months after calving.
10. Define the term specific gravity, and draw a diagram of an ordinary Lactometer.

EXAMINATION FOR CHEESEMAKING CERTIFICATE AT THE
BRITISH DAIRY INSTITUTE, READING; ON TUESDAY,
WEDNESDAY, THURSDAY, AND FRIDAY, SEPTEMBER
19TH, 20TH, 21ST, AND 22ND, 1922.

EXAMINERS :

F. J. LLOYD, F.I.C., F.C.S., and G. SUTHERLAND THOMSON.

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QUESTIONS.

1. Describe fully the grading of an 80-lb. Cheddar cheese, and give the scale of points upon which you would make your awards, and state carefully the reasons for the various points in the scale adopted.
2. What conditions in manufacture will produce Cheddar cheese of a quality suggestive of a low fat content, and how would you describe the quality, and accurately determine the value of the cheese as a food ?
3. Describe the quality of Cheddar cheese especially desired by the London trade, and compare with that required in other market centres in England as a guide to manufacture.
4. What is wrong that so much of the output of Stilton cheese is not in accordance with the true characteristics of this variety of cheese ? What are the remedies, and how would you enforce them ?
5. Is the atmosphere of a district a vital factor in the manufacture of cheese ? Accompany your answer with reasons and observations.
6. Compare British made Camembert cheese with the French and Danish product, and what are the indications that a Camembert is ripening satisfactorily ? Describe a prime Camembert in language understood by the retail trade.
7. Explain the vital stages in the manufacture of the following varieties of cheese :—Wensleydale, Cheshire and cream cheese.
8. In the purchase of rennet, would you stipulate that the vells from which the rennet is extracted be either exclusively wet or dry ? Also give an example in writing of a manufacturer's guarantee which you would consider satisfactory to the practical cheesemaker.

The British Dairy Farmers' Association.

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The British Dairy Farmers' Association.

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Dr. ANDREWES, Pathological Laboratory, St. Bartholomew's Hospital.

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T. J. DRAKELEY, Ph.D., M.Sc., F.I.C., F.C.S., M.I.M.E.,

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 Dickie, Robert, Knockenjig, Sanguhar, Dumfriesshire
 Dickinson, B. O., Pharos, Burnham-on-Sea, Somerset
 Dickson & Robinson (represented by F. Robinson), Cathedral Street, Manchester, Lancs
 Dickson, Miss K., Sutton Place Cottage, Abinger, Surrey
 Dimmock, J. B., Shotford Hall, Harleston, Norfolk
 Dixon, Joseph, Spring Grove, near Sheffield, Yorks
 Dixon, T. & M., Ltd. (represented by R. Dixon), Tardebigge, Bromsgrove, Worcester
 Doughty, Wilfrid, V., J.P., Ickleford Manor, Hitchin, Herts
 Douglas, John, Douglas Wharf, Putney, London, S.W. 15
 Douglas, L. M., 29, West Saville Terrace, Newington, Edinburgh
 Douglas, Thomas, Douglas Wharf, Putney, London, S.W. 15
 Dover, J. G. (L.M.)
 Doyle, Miss A. M., Munster Institute, Cork
 Drakeley, Dr. T. J., Ph. D, M. Sc., F.I.C., F.C.S., M.I.M.E., 69, Roseberry Road, Muswell Hill, London, N. 10
 Drew, Edward T., 21, Congo Road, Plumstead, London, S.E. 18
 Drummond, Prof. R. J., Dairy School, Kilmarnock
 Drysdale, John, Scottish Agricultural Organisation Society, 5, St. Andrew Square, Edinburgh
 Duchess of Devonshire Dairy Co., Ltd. (represented by T. R. Mills), Tiverton Junction, Cullompton, Devon
 Duckworth, Capt. E., Hooton Farm, Hooton, Birkenhead
 Dudgeon, Major C. Randolph, Cargen-Holm, Dumfries
 Dugdale, Major J. Gordon, The Abbey, Cirencester
 Dunlop, Quintin, Greenan, Ayr
 Dunmow Fitch Bacon Co., Ltd. (represented by Wm. Hasler), Dunmow, Essex
 Dunn, Henry, The Leicester Arms Hotel, Penshurst, Kent (L.M.)
 Du Val, John, La Caroline, St. Peter's, Jersey
 Dyer & Son (represented by T. Dyer), Illston, Billesdon, Leicestershire

 EASTON, Edward G., 43, Gt. Tower Street, London, E.C. 3
 Eaton, George T., Thurston Hall, Framfield, Sussex
 Edmead, John W., Bury Fields House, Guildford
 Edwards, F. C., Granby House, Granby Street, Hampstead Road, London, N.W.
 Edwards, Geoffrey, 41, Lovelace Gardens, Surbiton, Surrey
 Edwards, Henry, Hofland Road, West Kensington, London, W. 14
 Edwards, J. W.
 Edwards, Miss Katie, Ty-draw Farm, Nelson, near Cardiff

Edwards, Sidney, Blackbirds' Nest, Bassaleg, Newport, Mon
 Edwards, W. H., Brookfield, Pinhoe, near Exeter
 Ellison, R., Colonial House, Tooley Street, London, S.E. 1
 Elmhurst Farming and Trading Co., Ltd. (represented by H. St. George Voules),
 Elmhurst Farm, Slinfold, Sussex (L.M.)
 Elveden, Viscount, C.B., C.M.G., M.P., 11, St. James's Square, London, S.W. 1
 Elwes, Lt.-Col. W., Oakdale, Ockley, Surrey
 Emberton, William, Home Farm, Doddington, Nantwich, Cheshire
 Emerton, Frank, 78, Grange Drive, Winchmore Hill, N. 21
 Emerton, H. J., The Chase, Winchmore Hill, N. 21
 Enamelled Metal Products Corporation, Limited (represented by C. J. Porter), 56,
 Kingsway, London, W.C. 2
 Enock, Arthur Guy, Thane Works, Fountayne Road, Broad Lane, Tottenham, N. 15
 Entwistle, Miss E.
 Errington, Roger, Victoria Mills, Sunderland
 Erwood, H. J., 47, Whitworth Road, Plumstead, London, S.E. 18
 Evans, J., Harrington House, Cheltenham
 Evans, Mrs. E. W., Crickleaze House, near Chard, Somerset
 Evans, Richard H., Metro Buildings, Pwllheli, Carnarvonshire
 Evans, Sir Walter H., Bart., Wightwick Hall, near Wolverhampton
 Evelyn, Mrs. J. H. C., Wotton House, near Dorking, Surrey (All communications
 to Estate Office, Wotton, Dorking)
 Evens, John, Burton, Lincoln
 Everard, W. Lindsey, Ratcliffe Hall, Leicestershire (L.M.)
 Eves, Major H., Rosemary Farm, Brenchley, Kent
 Ewing, Hugh, Birtley Farm, Bramley, Guildford, Surrey
 Ewing, M., Ashlands House, Crewkerne, Somerset
 Exeter Co-operative & Industrial Society, Ltd. (represented by F. Hannaford,
 6 & 7, Eastgate, Exeter)
 Express Dairy Company, Limited (represented by R. H. Hewson), Tavistock
 Place, London, W.C. 1
 Ezra, Capt. E., Lock, Partridge Green, Sussex (Agent : F. P. Musgrave)

FAIRBANKS, Reginald A., Stammerham, Holbrook, near Horsham
 Fairweather, E. C., Avisford Park, Arundel, Sussex
 Farmer, John T. H., Devonia, Cippenham, Bucks
 Farmer, Samuel Wm., Little Bedwyn, Wilts
 Farmers' and Cleveland Dairies Company, Limited (represented by J. T. Horner),
 12 and 13, East Street, Gifford Street, Caledonian Road, London, N. 1
 Farwig, H. A., Mapleton Dairy Company, Mapleton Farm, Edenbridge, Kent
 Fawkes, Algernon (L.M.)
 Fawkes, F. H., Farnley Hall, Otley, Yorks
 Feilding, Lt.-Col. Viscount, C.M.G., D.S.O., Street Ashton House, Rugby
 Fewings, J. H., Ferndale, Bream, Glos
 Fewson, Mrs. A., 17, Ripplevale Grove, Barnsbury, London, N. 1
 Fielding, A. Ross, Park Lodge, Stone, Staffs
 Finch, Bernard, Flitwick, Beds
 Finlayson, J. J., Copley House Farm, Meltham, Yorks
 Firth, T., Hall Farm, Darley Dale, near Matlock
 Fish, A. R., Holme Mead, Hutton, near Preston
 Fisher, Fred T., Pinkneys Court, Pinkneys Green, Maidenhead (L.M.)
 Fisher, J. T., Eastfield, Peterborough
 Fison, Joseph, & Co. Ltd. (represented by Harry M. Ennals), Ipswich
 Fitz Gerald, Lt.-Com., T. W., 43, Regent Square, London, W.C. 1
 Fitzherbert-Brockholes, W., J.P., D.L., C.B.E., 12, Paulton Square, Chelsea,
 London, S.W. 3
 Fitzroy, Capt. the Hon. E. A., M.P., Fox Hill, West Haddon, Rugby
 Fletcher, H. G., The Galloway Creamery, Ltd., Stranraer
 Fletcher, Miss M. J., 28, Park Road, Chelmsford
 Folkestone, Viscount, Longford Castle, Salisbury (L.M.) (Agent : R. E. Macan)
 Follows, A. J., Metchley Park, Edgbaston, Birmingham, Warwickshire
 Foot, Mrs. R. M., White Hill, Berkhamsted (L.M.)
 Forester, Capt. F., M.F.H., Saxelbye Park, Melton Mowbray
 Formby, Wm., The Cedars, Stratton St. Michael, Long Stratton, Norfolk

- Forster, Miss Jane, Dairy Institute, Worleston, Nantwich, Cheshire
 Fortescue, Earl, Castle Hill, South Molton, North Devon (L.M.)
 Forteviot, Lord, Dupplin Castle, Perthshire (L.M.)
 Fortnam, Joseph T., Rudge Manor, Ashley, Market Drayton
 Fortune, Robert, Ne whouse, Cranleigh, Surrey
 Foster, Thomas, 27, Church Street, Ormskirk, Lancs.
 Four Oaks Spraying Machine Co. (represented by W. C. G. Ludford), Four Oaks,
 Sutton Coldfield, Birmingham, Warwickshire
 Fowler and De la Ferrelle (represented by T. W. Brider), Porters Lane, near Royal
 Pier, Southampton, Hants
 Fowler, W. Herbert, J.P., Chussex, Walton-on-the-Hill, Epsom (L.M.)
 Francis, C. G., Strawberry Poultry Farm, Edgbaston Park Road, Birmingham
 Francis, E. J., Manor Farm, Stour Provost, Gillingham, Dorset
 Freckelton, F. S., Narborough Wood, Enderby, Leicester
 Freeman, Miss Z. S., Dial House, Shepperton-on-Thames
 Freeth & Pocock (represented by Sir Sidney J. Pocock, J.P.), 50, Hill Road,
 Wimbledon, S.W. 16
 Freeth, Capt. Edwin, 81, West Hill, Putney, London, S.W. 15
 Fremlin, Walter T., Milgate Park, Maidstone, Kent
 French, W. T., & Son (represented by A. E. French), St. Mary Street, Ladywood,
 Birmingham
 Frowd, Herbert H., Gibraltar, Firle, Lewes, Sussex
 Fuller, Dr. L. O., Three Counties Mental Hospital, Arlesey, Beds
 Fuller, Major Robert F., J.P., Great Chalfield, Melksham, Wilts (L.M.)
 Fullwood & Bland (represented by Charles Bland), 31, Beveden Street, Hoxton, N. 1

 GABELL, C. D., 104, Albion Road, Stoke Newington, London, N. 16
 Gamage, A. W., Ltd. (represented by John S. Parker), Horticultural Dept.,
 Holborn, E.C. 1
 Gardner, Mrs. Chas. H., Rectory Farm, Pulloxhill, Ampthill, Beds
 Garne, W. T., Aldsworth, near Northleach, Glos (L.M.)
 Garrad, George H., Wye College, Kent
 Garrard, F. R., The Hall, Framlingham, Suffolk (L.M.)
 Gartons, Ltd. (represented by George P. Miln), Warrington
 Gascoigne Co., Ltd. (represented by G. H. Gascoigne), 3, Central Buildings,
 Westminster, London, S.W. 1
 Gates, B. F. J., Wing Park, Wing, Bucks
 Gatty, Albert A., The Hall, Brimfield, S.O., Herefordshire
 Gibbons, Henry H., Model Farm, King's Langley, Herts
 Gibson, Miss Peggie, Dairy School, Kilmarnock
 Gibson, Mrs. M., Cofton Farm, Starcross, near Exeter
 Gibson, William, C.B.E., Walton Warren, near Burton-on-Trent
 Gilbert, C. E., Oaklands, Mickleover, near Derby
 Gilbert, F. W., The Lawn, Chellaston, Derby
 Giles, Henry, Stockers Farm, Rickmansworth, Herts
 Gilmour, W. P., Balmangan, Kirkcudbright
 Gisborne, Col. Lionel, C.M.G., Lingen Hall, Bampton Bryan, Herefordshire (L.M.)
 Gittins, William H., The Hall Farm, Ruyton-of-the-Eleven Towns, Shropshire
 Gloucester Incubator Company (represented by E. L. Godfrey), Woodchester Mills,
 near Stroud, Glos
 Glover, Wilfred, The Retreat, Willoughby, Waterleys, near Leicester
 Goddard, A., Station Road, Totton, Hants
 Goddard, E.P., South Eastern Agricultural College, Wye, Kent
 Godfrey, E. L., Woodchester Mills, near Stroud, Glos
 Godfrey, J. N., Sharpenhoe, near Ampthill, Beds
 Godfrey, John, & Co., Ltd. (Represented by C. B. Carter), Railway Gates, Stamford
 Godman, Lt.-Col. A. F., East House, Great Smeaton, Northallerton, Yorks
 Golding, Capt. John, D.S.O., Cutbush Lane, Shinfield, near Reading
 Golding, W. J., Bowens, Penshurst, Kent
 Golland, Tom J., The Mill Farm, Appleby, Doncaster, Yorks
 Good Rich Products Co., Ltd. (represented by J. Stenton), 90, Freeman Street,
 Grimsby
 Goode, C. N., The Haydens, Bletsoe, Bedford
 Goodwin, E., Yew Tree House, Burston, Stafford
 Goodwin, Thomas C., Leighton Grange, Crewe

- Gordon, Miss M. E., 51a, Ashby Road, Loughborough
 Gosling, Miss E. F., Chobham Park Farm, Chobham, Surrey
 Gosney, G. F., 234, Strand, London W.C. 2
 Gostling & Co. (represented by A. H. Jeffery), Diss, Norfolk
 Gough, Percival J., Whitefield Poultry Farm, Someford, Christchurch
 Grabham, A., 139, Englefield Road, Essex Road, London, N. 1
 Grace, E. G., Woolston Farm, Stogusey, near Bridgewater
 Graham, Wm., Eden Grove, Kirkbythore, Penrith, Cumberland (L.M.)
 Grant, A. P. F., M.B.E., Westlands, Horley, Surrey
 Grant, Mrs. M. A., Westlands, Horley, Surrey
 Grant, Reginald
 Grant, W. J., 42, Llanthwy Road, Newport, Mon.
 Gray, George E., Fairstead, Great Warley Essex (L.M.)
 Gray, Robert, Estate Office, Sherborne Park, Northleach, S.O., Glos
 Grayson, Thomas, 16 and 17, Queen Street, Derby
 Great Western and Metropolitan Dairies, Ltd. (represented by Sir Wm. Price), 34, Palace Court, Bayswater, London, W. 2
 Green, Wm. Henry, Brookfield, Bramhall, Cheshire
 Greenall, Sir Gilbert, Bart., C.V.O., Walton Hall, Warrington, Lancs (Agent, W. Bainbridge, Walton, Estate Office, near Warrington)
 Greenway, Capt. C. K., Stanbridge Earls, Romsey, Hants
 Greenwood, H. S., The Park Farm, Chaddingly, Sussex
 Greenwood, Lt.-Col. Charles S., M.B.E., J.P., Swarcliffe, Birstwith, Harrogate
 Gregory, W., & Co., Ltd. (represented by W. Gregory), Wellington, Somerset
 Gregfell, General H., Pickwell Manor, Oakham
 Griffin, J. Whitehouse (L.M.)
 Griffiths, Miss M. F., 1, St. Peter's Terrace, Cambridge
 Grimsdale & Sons, Ltd. (represented by D. Herbert Grimsdale), 54, Great Tower Street, London, E.C. 3
 Grimsdell, Henry John, 36, Snow Hill, London, E.C. 1
 Gurnell, Frank, West End Farm, Ashby, Scunthorpe, Lincs
- HALE, Arthur, C., Battenhurst Farm, Stonegate, Ticehurst, Sussex
 Hale, Horace, Findon, Worthing, Sussex
 Hall, Henry H., Rye Hills, Marske-by-the-Sea, Yorks
 Hall, Miss A., Hafodyrynys, near Crumlin, Mon.
 Hall, Miss E. M. G., Craycombe House, Pershore, Worcester
 Hall, Richard, Torrisholme Hall, Morecambe
 Hall, R. Charles, The Wend Farm, Coulsdon, Surrey
 Hambleton, Viscount, Greenlands, Henley-on-Thames. (Agent, W. F. Holt Beever, Estate Offices, Yewden, Henley)
 Hambro, H. C., The Lodge, Tadworth, Surrey
 Hambro, Sir E. A., K.C.V.O., Hayes Place, Hayes, Kent (L.M.)
 Hamilton, Miss M. H., Coddington Court, Ledbury, Herefordshire
 Hamilton and Brandon, The Duchess of, Hamilton Palace, Lanarkshire
 Hamlyn & Co., Ltd. (represented by G. W. French), 45, Coplestone Road, Peckham, London, S.E. 15
 Hampshire, Frank H., Ash Villa, Upperthong, Holmfirth, near Huddersfield
 Hampshire H., Cefn Tilla Farm, near Usk, Mon
 Hand, J. Denyer, *The Dairy Offices*, 21, Farringdon Avenue London, E.C. 4
 Hankey, Colonel Walter A. (L.M.)
 Hannett, F. Charles, Saltwood House, Hanworth Road, Hounslow
 Hansen, H., Elmswell, Bury St. Edmunds
 Hansen's Laboratory, Ltd. (represented by J. C. Moller), 77, St. Thomas Street, London, S.E. 1
 Hardcastle, Major H. M., Bradshaw Hall, Bolton-le-Moors, Lancs
 Hardie, W., Manor Farm Dairy, 50, St. Leonards Road, Bexhill-on-Sea, Sussex
 Harding, G. P., J.P., Rogerstone Grange, Chepstow, Mon.
 Hardman, N., The Elms, Barton, Preston, Lancs
 Hare, Lady Kathleen, Brokenhurst Park, Brokenhurst, Hants
 Harewood, Earl of, Harewood House, Leeds, Yorks
 Harries, T. Ll., Pilrtho, Llanstephen Road, Carmarthen
 Harris, Arthur C., Donnington Manor, Chichester
 Harris-Stephenson, Edward A., Burton House, near Stafford

- Harris, Stanley, Aspley Guise, S.O., Bedford (L.M.)
 Harrison, R. C. H., Shiplake Court, Henley-on-Thames, Oxon
 Harrison, McGregor & Co., Ltd. (represented by T. D. Harrison), Albion Iron Works, Leigh, Lancs
 Hassell, A. W., Tudor Farm, East Harptree, Bristol
 Hastings, Lord, Melton Constable Park, Norfolk
 Hatfield, E., Ministry of Agriculture and Fisheries, Welsh Office, Aberystwyth
 Hawes, Miss G. B., The Grange, Ditton Road, Surbiton, Surrey
 Hawes, Thomas, Bent Hill Farm, near Buckingham
 Hawkins, A. W. Bailey, Stagenhoe Park, Welwyn, Herts
 Hay, Percy T., 3, Brookfield Park, Highgate Road, London, N.W. 5
 Hayes, Arthur John Asa, 18b, Salisbury Street, New North Road, London, N. 1
 Hayes & Son (represented by John E. Hayes), Stamford, Lincs
 Hayward, Colonel J. F. Curtis, Quedgeley, Gloucester (L.M.)
 Hearnshaw, R. Fletcher, Foxhill, Burton Joyce, Nottingham (L.M.)
 Heath, Mrs. Enoch, The Elms Farm, Raglan, Mon.
 Heaton, Stuart, Poplar Farm, Iken, Tunstall, Suffolk
 Heavens, William, Postern Gate Farm, South Godstone, Surrey
 Heaver, Exors. of the late John W. T., Ratham House, Chichester, Sussex
 Hebdict, Harry, Poultry Farmer and Appliance Maker, Martock, Somerset
 Henderson, Admiral W., Littlegrove Farm, Ropley, Hants
 Henderson, Exors. of the late Lt.-Col. the Hon. H. G., Buscot Park, Faringdon, Berks. (Agent, Walter Crosland, Estate Office)
 Henderson, Miss Marjorie, The Riding, Hexham, Northumberland
 Henry, Colonel Frank, J.P., Elmtree, Tetbury, Glos
 Hepworth, Miss N. M., Red Court, Ealing, London, W. 5.
 Herbert, C. A., Heaselands, Haywards Heath, Sussex
 Herbert, F. F., The Graig, Penalt, Mon.
 Heseltine, Lieut.-Col. John E. N., Hawking Down, Hindon, Salisbury
 Hewitt, F. Vernon, Oaklands, Quorn, Leicestershire
 Hewthorn & Co., Ltd., (represented by Charles Simpson), 70, Finsbury Pavement, London, E.C. 2
 Heywood, N. A., J.P., Glevering Park, Wickham Market, Suffolk (L.M.)
 Heywood-Lonsdale, Lt.-Col. H. H., Shavington, Market Drayton, Salop
 Hicking, Sir William N., Bart., Brackenhurst Hall, Southwell, Notts.
 Hicks, Miss V., New Victorian Club, 30a, Sackville Street, London, W. 1
 Higgins, W., Kilburn Lane Farm, Kensal Green, London, N.W.
 Higgs, James, 2, Canterbury Road, Brixton, S.W. 9
 Hill, G. & Sons (represented by E. F. Hill), Evercreech, Somerset
 Hillier's Bacon Curing Co., Ltd. (represented by John Abbott), Newmarket, near Stroud, Gloucester
 Hincks, Henry Thorp, Keyham, near Leicester
 Hindlip, Lord, Hindlip Hall, Worcester (Agent, Capt. W. Robson, Estate Office, Hindlip)
 Hinton, Robert J., Heytesbury, Wilts.
 Hitchen, Thomas L., Highfields, Baddiley, Nantwich, Cheshire
 Hobbs, R. W., & Sons (represented by R. W. Hobbs), Kelmscott, Lechlade, Glos
 Hobson, J. T., & Co. (represented by Mr. Eccles), New Wharf, St. Mary's, Bedford
 Hobson, W. H., Woodhey Hall, Nantwich
 Hodge, Mrs. Arthur B., The Redings, Totteridge, London, N. 21
 Hodgson, J. D., Vicars Hill, Lymington, Hants
 Holborow, J. P., Northfield Farm, Charlton Kings, Glos
 Hole, Sidney, Yew Tree House, Albourne, Hassocks, Sussex
 Hollington, Alfred Jordan, Forty Hill, Enfield, Middlesex
 Holm, H. C., The Grange, Carlton Curliue, Leicester
 Holman, H., J.P., Holcombe Down, Teignmouth, Devon
 Holmes, John, British Dairy Institute, Reading
 Holmes, W. F., The Thatched House, Hampton Wick, Middlesex
 Holmes-Hunt, W., Crawley Down, Sussex
 Holt-Thomas, G., North Dean House, Hughenden, Bucks
 Hooker, John Henry, The Firs, Buckingham
 Hope, H. E., Hope's Wharf, Hammersmith, London, W. 6
 Hopwood, Alfred A., Dairy House, Handforth, Cheshire
 Hopwoods (London) Ltd. (represented by A. C. Smith), 43, Regent Square, London, W.C. 1

Hornby, E. G. S., J.P., Dalton Hall, Burton, Westmorland
 Hornby & Clarke (represented by H. E. Hornby), 12, The Quadrant, Richmond, Surrey
 Horne, W. Edgar, M.P., Hall Place, Shackleford, Godalming, Surrey
 Hoskin, Miss Dorothy U., Cartuther Barton, Liskeard, Cornwall
 Hosking & Sons (represented by O. H. Hosking), Fentongollan, Probus, Cornwall
 Hough, S. G., Springhouse Park, Theydon Bois, Essex
 House, C. A., Poultry Press, Ltd., 54 & 55, Fetter Lane, London, E.C. 4
 Howard, H. G., 39, Valkyrie Road, Westcliff-on-Sea, Essex
 Howard, Miss Margaret, 49, Grey Street, Newcastle-on-Tyne
 Howard, Robert, Pound Farm, Esher, Surrey
 Howell, Mrs. A. Gwynne, Heathfield, Letters'on, Pem
 Howie, James, Hillhouse, Kilmarnock
 Howkins, Rex, Clifton Keynes, Newport Pagnell, Bucks
 Hudson, James, 8, Garden Road, Bromley, Kent
 Hughes, George, 155, Fenchurch Street, London, E.C. 3
 Hughes, Herbert E., The Bungalow, Broxbourne, Herts
 Hughes, James N., Moreton Farm, Thame, Oxon
 Humphreys-Owen, Major A. C., J.P., Glansevern, Berriew, S.O., Mon
 Hunn, Capt., K. W., Porters Farm, Olford, Sevenoaks
 Hunt, James, Ltd. (represented by E. A. Hunt), Atalanta Street, Fulham, London S.W. 6
 Hunt, W., Traceys Farm, Berry Pomeroy, Totnes, South Devon
 Hunting, J. C., Pankridge Farm, Gt. Missenden, Bucks
 Hurran, Rowland, 31, Beviden Street, Hoxton, London, N. 1
 Hutton-Stott, F. H. (L.M.)

IMPERIAL LIVE STOCK INSURANCE CO., Ltd. (A. W. Hewett, Manager), 27, Cavendish Square, London, W. 1
 India, Off. Inspector General of Agriculture in (S. Milligan, M.A., B.Sc., Pusa, Bihar)
 Insurance Packing Co., Ltd. (represented by Major D. Travis-Cooke), 82, Westbourne Grove, London, W. 2
 International Harvester Company of Great Britain, Ltd. (represented by Arthur Neale), 80, Finsbury Pavement, London, E.C. 2
 Ireland, Miss Ellen L., East Balmirmer, Arbroath, Scotland
 Irons, Frederick, Elsdon Dairy, Wellingborough, Northants
 Ismay, James H., Iwerne Minster House, Blandford, Dorset
 Ive, C., New Haw Road, Addlestone, Surrey

JACKSON, Dr. E. S., Carnforth
 Jackson, Frederic, Woodlands, near Garstang, Lancs
 Jackson, Harold, J.P., Oaken Clough, Garstang, Lancs
 Jackson, Miss A., Shirehall, Hereford
 James, Miss E. E., Murrell Hill, Binfield, Berks
 James, Miss Rachel, Llancayo, near Usk, Mon
 Jarmay, I. B. & H. L. (represented by I. B. Jarmay), Bulkeley Hall, Malpas
 Jeal, W. A., Cedar Poultry Farm, Hounslow, Middlesex
 Jefferson, Mrs. G. M., The High Beech, Hollington, St. Leonards-on-Sea
 Jeffery, A., 70, High Street, Walthamstow, Essex
 Jenkins, Evan O., 45, Stamford Road, Kingsland, London, E. 8
 Jenkinson, J. H. Dixon, Church Lane, Handsworth, Birmingham
 Jenkyns, Arthur, Coledown, Botley, Hants
 Jennings, John E., Restormel, Lostwithiel, Cornwall
 Jersey, Countess of, Middleton Stoney, Oxfordshire
 Jervoise, A. T. E., The Grange, Herriard, Basingstoke, Hants (L.M.)
 Jervoise, Mrs. B., Herriard Park, Basingstoke, Hants (L.M.)
 Jessop, W. Frank, Thomley Hall, Thame, Oxon
 Johnston, William Hunter, 17, Cumberland Park, Acton, W.
 Jones, J. E., Moss Farm, Houghton, Tarporley, Cheshire
 Jones, J. L., Chilton Grounds, Thame, Oxon
 Jones, Major Harry, The Elms, Brandon, Suffolk
 Jones, Mrs. G., Plas-Yn-Llan, Llangynhafal, Ruthin, North Wales
 Jones, Mrs. Mary, New House, Stanton-on-Wye, Hereford
 Joyce, Geoffrey, Blackfordby, near Burton-on-Trent, Stafford
 Jukes, Wm. A., 11, Great Marlborough Street, London, W. 1
 Jupe, Arthur T., 105, Lordship Lane, East Dulwich, London, S.E. 22

- KAVANAGH, Miss Mary R., Ulster Dairy School, Cookstown, Co. Tyrone, Ireland
 Kaye, Robert W., Great Glen Manor, near Leicester
 Keeble, J. R., Brantham Hall, Manningtree
 Keeps, Ltd. (represented by William Fox), 24, Holborn, London E.C. 1
 Kell, Thos., Nettleton Manor, Caistor, Lincolnshire
 Kendall, Mrs. William, Millow Hall Farm, Biggleswade, Beds
 Kennedy, Robert, 346, Pollockshaw Road, Glasgow
 Kennedy, Mrs. Watson, Wiveton Hall, Cley, Norfolk
 Kent, Mrs. Harry, Court Lodge, Hove, Sussex
 Kenyon, Lord, Gredington, Whitchurch, Salop
 Keyser, Charles E., J.P., Aldermaston Court, near Reading, Berks
 King, Alfred C., Braishfield Manor, Romsey, Hants
 Kingscote, Geo. S., Gloucester Dairy Supply, Limited, Gloucester
 Kirby, Arthur T., Studley Farm, Oxford
 Kirk, Richard, Kendal, Upton Road, Bexley Heath
 Knight, John, 108, Whitehorse Street, Stepney, London, E. 1
 Knight, W., Wintringham Hall, St. Neots, Huntingdonshire
 Knowles, Henry, 213, Uttoxeter Road, Derby
 Knowles, Miss Margaret, Chipping Dairy, Longridge, Preston
- LACY-HULBERT, Mrs. H., Edge Hill, Warlingham, Surrey
 Laity, H. H., Bosistow, Porthcurnow, Cornwall
 Lamb, William C., Cedar House, Hampton Wick, Middlesex
 Lambert, Thomas, Bourne Mill, Hadlow, Kent
 Lambton, General The Hon. Charles, D.S.O., Naval and Military Club, 94, Piccadilly, London, W. 1
 Landon, Henry, Walton Farm, Aylesbury, Bucks
 Lane-Fox, Major G. R., M.P., J.P., Bramham Park, Boston Spa, Yorks
 Lang, J. & D. (represented by John Lang), Home Farm, Fetcham, near Leatherhead, Surrey
 Langman, A. L., C.M.G., J.P., North Cadbury, Somerset
 Langridge, Wm., Walsted, Crawley, Sussex
 Lansdowne, Marquis of, Bowood, Calne, Wilts (L.M.)
 Latham, Arthur O., Woodway Farm, Aston Rowant, Wallingford
 Law, Walter R. J., West Street, Buckingham
 Lawrence, Lieut., D. F., R.N., Rahere Lodge, Sway, Hampshire
 Lawrence & Co., Limited (represented by Geo. H. Bradley), 132, Latimer Road, London, W. 10
 Lawton, Reginald, The United Dairies Limited, Fason Bridge, Somerset
 Lea, William L., Blyn Euryn, Colwyn Bay
 Leach, Felix W., Meddler Stud, Kennett, Newmarket
 Lear, Henry, Doynton, Bristol
 Lee, F. Ewart, The Oaks Farm, Banstead, Surrey
 Lee, James E., Lower Farm, Hilderstone, Stone, Staffs
 Leech, George Henry, The Greaves, Rochdale, Lancs
 Leitch, Prof. Renwick H., M.A., B.Sc., Dairy School, Kilmarnock
 Leitrim, Earl of, Teston, Maidstone (L.M.)
 Leon, Sir Herbert S., Bart., Bletchley Park, Bucks
 Leppard, F., Walmer, Hadley Road, New Barnet
 Lewis, Henry D., Combwell Priory, Goudhurst, Kent
 Lewis, T. H., Ltd. (represented by W. W. Travis), 122, Gloucester Road, Chalk Farm, London, N.W. 1
 Lewisham, Viscount, Godmersham Park, near Canterbury
 Lilford, Lord, Lilford Hall, Oundle, Northants
 Lilley, Joseph E., 12, Alleyn Park, Dulwich, London, S.E. (L.M.)
 Lindsey-Renton, George H., Dovers, near Reigate, Surrey
 Ling, George, Downside Farm, Cobham, Surrey
 Linlithgow, Marquis of, Hopetoun House, South Queensferry, Scotland
 Lister, Sir Robert Ashton, Dursley, Gloucester
 Little, George, 1, Brook Street, Huddersfield
 Little, Miss Emily K., British Dairy Institute, Reading, Berks
 Littleton, John, The Home Farm, Arkleby Hall, Aspatria, Cumberland
 Liverine, Ltd. (represented by J. Harold King), Grimsby, Lincs
 Llewellyn, G. Herbert (representing G. Llewellyn & Son), Haverfordwest

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 Lloyd, Frank, Eytton House, Wrexham, Denbigh
 Lockett, Edward, Moreton Wood, Whitchurch, Salop
 Logan, G. L., Sole Farm, Steep, Petersfield, Hants.
 London Wholesale Dairies, Limited (represented by John Hopkins), 9, Harrow Road, London, W. 2
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 Long, Miss D. A. C., 4, St. Andrew's Road, Caversham, Reading
 Long, Professor James, Pembroke Lodge, Redhill, Surrey
 Long, Robert, Upper Standon, Shefford, Beds
 Longden, G. A., Draycott Lodge, near Derby (L.M.)
 Longe, J. M., Greenford Lodge, Greenford, Middlesex
 Lonsdale, Earl of, Lowther, Penrith, Cumberland
 Look, Miss Ida M., The County Offices, Poleban, Trowbridge
 Loosley, A. J., Moreton, Thame, Oxon
 Loram, Alfred T., Rosamondford, Aylesbeare, near Exeter
 Lord, Jas. W., Church House, Northiam, Sussex
 Lousley, Edward, Field Farm, Burghfield, Reading
 Lousley, Job, Green Farm, Burghfield, Berks
 Lovell, Ernest John, Court Farm, Little Haseley, Oxon
 Lovell, W. G., 12, West Smithfield, London, E.C. 1
 Low, William
 Loyd, A. Thomas, M.P., Lockinge House, Wantage, Berks (L.M.)
 Lowndes, William, The Bury, Chesham, Bucks (L.M.)
 Lucas, Albert E., The Manor House, Stowe Nine Churches, Weedon, Northants
 Lucas, Lt.-Col. W. F., Beech Place, Stowmarket, Suffolk
 Lucas, Miss C. Byng, Sutton House, Iford, near Lewes.
 Lupton, N. D., Chalmington, Dorchester, Dorset (L.M.)
 Lutley, A. T., Whitehall, Ilmemyock, Devon
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 Lymposh, Fred. W., Winterhill Farm, London Road, near Guildford
 Lyon, Andrew V. H., The Hall, Ingatestone, Essex
 Lyon, James, Creamery, Ballyrashane, Coleraine, Co. Antrim
 Lyon, James, Wilderness Farm, Guildford, Surrey
 Lyon, Lt.-Col. Charles, Appleton Hall, Warrington, Cheshire (L.M.)
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 Maciver, Mrs. H., Board of Agriculture for Scotland, 29, St. Andrews Square, Edinburgh
 Mackenzie, Kenneth J. J., University of Cambridge, Cambridge
 Mackey, Mrs. A., West Lees Farm, near Dorking, Surrey
 Mackintosh, James, University College, Reading, Berks
 MacNicol, D., F.S.I., Derwas, Aberfeldy, Denbigh
 Macqueen, Miss M. M., c/o Barclays Bank, 311 & 312, High Holborn, London, W.C. 1
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 McCandlish, A. C., Claunich, Sorbie, Wigtownshire
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 McConnell, Primrose, North Wyck, Southminster, Essex (L.M.)
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- Martin-Smith, J. H., 37, Ranelagh Road, S. Tottenham, London, N. 15
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- Masson, John, Attimore Hall Farm, Hatfield, Herts
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- Matthews, Miss Annie, East Anglian Institute, Chelmsford, Essex
- Matthews, Miss Jessie, 1, Central Avenue, West Bridgford, Notts
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- Maughan, A. S., Pontac, Marske-by-the-Sea, Yorks
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- Maxwell, the Hon. Miss Z. E., Hill Farm, Layer-de-la-Haye, Colchester
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- Maypole Dairy Company, Ltd. (Managing Director's Office), Southall, Middlesex
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- Middleton, H. W., Raleigh Farm Dairy, 3, Palace Parade, Enfield, Middlesex
- Milburn, Dr. T., Midland Agricultural Dairy College, Sutton Bonington, Loughborough
- Mildmay of Flete, Lord, Ivybridge, South Devon
- Millar, W. G., Bampton, Oxon
- Miller, F. W., Homefield, Hadley Common, Barnet
- Miller, Robert, Stirlingshire Poultry Farm, Denny, Scotland
- Miller-Hallett, Alexander, Goddington, Chelsfield, Kent
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- Milne, John, M.A., B.Sc., Court Lodge Farm, Teston, Maidstone
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- Morley, Thomas, Gallant's Farm, Whetstone, Middlesex
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- Morris, Capel, Ingleside, The Drive, Hove (L.M.)
- Morris, Charles, J.F., Highfield Hall, St. Albans
- Morrison, Major J. A., D.S.O., Basildon Park, Reading
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- Mortimore, A. J., Lockinge Home Farm, Ardington, Wantage
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 Newman, Sir Robert H. S. O. L., Bart., Mamhead Park, Exeter
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 Newton, Herbert A., Meadow Farm, Saham Toney, Thetford, Norfolk
 Newton, Sir Douglas, K.B.E., Croxton Park, Cambridgeshire (all communications
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 Northbrook, Earl of, Stratton, Micheldever Station, Hants
 Northumberland, Duke of, Alnwick Castle, Northumberland
 Norton, E. P., Whitchurch, Salop
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 Nuttall, Professor T. (L.M.)
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 Nye, Alfred G., Well Place, Penshurst, Kent

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 Onslow, Earl of, Clandon Park, Guildford
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 London, S.W. 9
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 Page, Lieut. Cyril H., The West Surrey Central Dairy Co., Ltd., Sherborne, Dorset
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 Palmer, Capt. R. E., Oaklands Park, Newdigate, Surrey
 Palmer, G. A., Wykin, Hinckley, Leicestershire
 Palmer, George, Sheene Farm, Meldreth, near Royston, Herts
 Palmer, Major W. L., Godmersham Park, near Canterbury
 Palmer, Mrs. W. Howard, Heathlands, Wokingham, Berks
 Palmer, Thomas W., c/o Ambrose & Palmer, 5, Fenchurch Street, London, E.C.
 Palmer, T. W., 5, Victoria Street, Westminster, London, S.W. 1
 Palmer, W. S., Old Hall, Anlaby, via Hull, Yorks
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 Parker, Hon. C. T., The Grove, Corsham, Wilts (L.M.)
 Parker, Robert E., Easton Hall, Norwich, Norfolk (L.M.)
 Parkinson, Percy W., Dordon Farm, Atherstone
 Parr, Roger C., Grappenhall, Heyes, Warrington (L.M.)
 Parson, J. J., Addiscombe Farm, Croydon, Surrey
 Parsons, E. V. E., Buckworth, Whiteparish, Salisbury
 Parsons, J. D. Toogood, jun., Grasmere, Hurstpierpoint Sussex (L.M.)
 Parton, Charles E., Haughton Hall Farm, Tarporley, Cheshire
 Partridge, C. H. C., Little Lambswick, Tenbury Wells, Worcestershire
 Passmore, Wm. Jutsum, Applesham Farm, Shoreham, Kent
 Paterson, James, Vernons House, Northaw, Herts
 Payne, C. R., Cintra, Mattingley, Basingstoke (L.M.)
 Pearce, W. A., Maynards, South Godstone, Surrey
 Pearce, W. J., Parbrook Farm, West Bradley, Glastonbury, Somerset
 Pearson, Major Hon. Harold, Cowdray Park, Midhurst, Sussex
 Pearson, Sir Edward E., Brickendonbury, Hertford
 Peart, I. T., Woodhall, Hatfield, Herts
 Pease, Reginald, Sledwich, Barnard Castle
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 Peel, John G., Peover Hall, Knutsford, Cheshire (L.M.)
 Pegler, H. S. Holmes, Coombe Bury House, Kingston Hill, Surrey
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 Perkins, Percy E. W., The Bowers, Holme Lacy, Hereford
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 Phillimore, Vice-Admiral Sir Richard F., K.C.B., K.C.M.G., Shedfield House, Shedfield, Hants
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 Phillips, John F., 116, High Road, Streatham, London, S.W. 2
 Phillips, W. Burnard, Hill House Poultry Farm, Cuffley, Herts
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 Phipps, W. H., Grendon-Underwood, Aylesbury
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 Pickford, Herbert H., Manor Farm, Patney, Devizes
 Pigott, E. E., Manor Farm, Wolvercote, Oxford
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 Plumptre, Henry Fitzwalter, Goodnestone Park, near Canterbury, Kent

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 Poingdestre, N. J., 11, West Park Avenue, St. Heliers, Jersey
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 Ponting, Arthur, Taynton, Kenley, Surrey
 Pool, David, 7, Lower Belgrave Street, London, S.W. 1
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 Poore, Herbert William, 52, Queen Victoria Street, London, E.C. 4
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 Popple, Joseph, Hallington House, near Louth, Lincs
 Porteous Ltd. (represented by E. J. Topple), 5 & 6, Bury Street, St. Mary Axe.
 London, E.C. 3
 Pote, F. W., Shadrack, Berry Pomeroy, Totnes, South Devon
 Potter, Lieut.-Col. W. A., Lambley House, Woodborough, Notts
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 Powell, Miss Jessie M., Upper House Farm, West Malvern
 Pratt-Barlow, Miss Frank, Lynchmere House, Haslemere, Surrey
 Pretymann, Capt. Ernest G., M.P., Orwell Park, Ipswich
 Price, Miss Edith M., Moseley Farm, Grumley, Worcester
 Prichard, Miss Annie A., The Dairy, Welbeck, Worksop
 Prideaux, Chas., Motcombe, Dorset
 Prideaux, George E., The Creamery, Stalbridge
 Prioleau, Mrs. W., Pen-y-lan, Boncath, South Wales
 Pritchard, Miss Eleanor, County Offices, 37, Foregate Street, Worcester
 Proctor, James S., Ardenlee, Brooklands, Cheshire
 Prosser, J., Molassine Company, Ltd., Greenwich, London, S.E. 10
 Pryor, Lt.-Col. W. M., D.S.O., Lamnack Manor, Stevenage. (All com-
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 Pye, J. T., Hall-o'-Coole, Nantwich, Cheshire

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 Pagnell
 Ravenscroft, B., 38, Lancaster Park, Richmond, Surrey
 Ray, Premen, National Dairy and Agricultural Farms, Ltd., Hewett Road,
 Lucknow, India
 Reading, Sydney, Rectory Farm, Langford, Lechlade
 Reece, Frank A., 3, Deane Street, Liverpool, Lancs
 Reeves, Mrs. M., Knapp House, Clevedon, Somerset
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 Relly, Cullis, c/o Standard Bank of South Africa, Cape Town, South Africa
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 Renouf, A. E.,
 Renshaw, S. H., J.P., Myerscough House, Garstang, Lancs
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 Richmond & Chandler, Ltd. (represented by E. Mitchell), Globe Works, Southall
 Street, Manchester
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 Rigby, T. A., J.P., Upton Heyes, Chester
 Riley, John, Putley Court, Ledbury, Hereford (L.M.)
 Rilott, Miss Clara, Brize Norton, Bampton, Oxon
 Rimmer, John, Roby Farm, Roby, Liverpool, Lancs

- Ringer, A. Beverley, Swardeston, Norfolk (L.M.)
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 Roberts, G. Percy, Moor Lodge, Bourne End-on-Thames, Bucks
 Roberts, J. H. N., Weybeards Farm, Harefield, Middlesex (L.M.)
 Roberts, Mrs. C., Melrose Model Dairy and Poultry Farm, Barns Green, Horsham
 Roberts, Mrs. E. A., Llewini Hall, Denbigh
 Robertson, Dr. G. S., D.Sc., F.I.C., Queen's University of Belfast, Belfast
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 Robinson, Capt. J. B. W., Oaklands, Gaddesby, Leicester
 Robinson, Joseph C., Iford, Lewes, Sussex
 Robinson, Miss M. P., West Gill, Gt. Broughton, Stokesley, Yorks
 Robinson, Norman, Elm Villas, Penwortham, Preston
 Robinson, Theodore R., Brunswick Lodge, Dunton Green, Kent
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 Rook, John, Town Farm, Wooburn Green, Bucks
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 Sadler, Mrs. A. F. Hayes, Noresbury, Sutton Scotney, Hants (L.M.)
 Sadler, Wilfrid, Department of Dairying, University of British Columbia, Vancouver, B.C.
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 Sandwich, Earl of, Hinchinbrooke, Huntingdon
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 Shapland, James L., Chaldon Court, near Caterham, Surrey

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 Shepherd, Robert, Parkside Farm, Preston Brook, Cheshire
 Sherrard, Capt. James O., Gaddesby Hall, Leicestershire
 Sherwood, S. R., Playford, Ipswich
 Shinwell, Mrs. P. E., Bollington Grange, Chelford, Cheshire
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 Slater, W. H., Vicarage Farm, Kempston, Beds
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 Smith, Clement C., Scarsons, Trumley, Ipswich, Suffolk
 Smith, Eustace Abel, Longhills, Lincoln (L.M.)
 Smith, Henry, Grange Court, Portington, Howden, Yorkshire
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INDEX TO ADVERTISEMENTS.

	PAGE
Animal Medicines, Sheep Dips, &c.	
CATALINE COMPANY	Inside Back Cover

Announcements, General.	
AGRICULTURAL GAZETTE	366
GOLDSMITHS & SILVERSMITHS CO., LTD. ...	369
ONTARIO GOVERNMENT... ..	367

Dairy Machinery, Utensils, &c.	
DAIRY SUPPLY CO., LTD.	1
HAWKES, G., & SONS	376
HENSTOCK, J. H.	373
KING, G. W., LTD.	368
MONO SERVICE CONTAINERS, LTD.	Inside Front Cover
PETTERS LIMITED	372
SCOTT & SON (LONDON), LTD.	371
STANSELL & GREGORY, LTD.	2
STORER, RODGERS, & HUGHES, LTD.	370

Insurance.	
MIDLAND EMPLOYERS' MUTUAL ASSURANCE, LTD.	374
WARDEN INSURANCE CO., LTD.	Outside Back Cover

Milk, Cream, Rennet, &c.	
BARNEKOW'S RENNET	375
CURTIS BROS. & DUMBRILL, LTD.	373
STAPLETON & SONS, LTD.	367
UNITED DAIRIES (WHOLESALE), LTD.	370

Veterinary Appliances.	
ARNOLD & SONS... ..	4

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